MedTrack® CR60 Rehabilitation Treadmill
Service Manual

QUINTON®

P/N 042101-001 Rev A

This is the CE marking of conformity indicating that the device having this symbol on its immediate label meets the applicable requirements of the European Medical Device Directive.

Authorized European Representative
Medical Device Safety Service
Burckhardtstr. 1
D-30163 Hannover, Germany

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Preface

This manual contains information for servicing and repairing the Quinton® MedTrack CR60 Rehabilitation treadmill to the module level. The manual covers domestic and international versions of the treadmill.

The manual is written for Quinton-authorized service personnel with proper training. There are no user-serviceable parts in the treadmills. Any attempt by non-Quinton-trained personnel to service the treadmill can void the warranty. For service information, call Quinton Technical Service: 800-426-0337.

Before servicing the treadmill, read the safety requirements listed in Appendix A.

- Use this manual only for servicing the MedTrack CR60 treadmill. Do not use this manual for servicing other Quinton treadmills.

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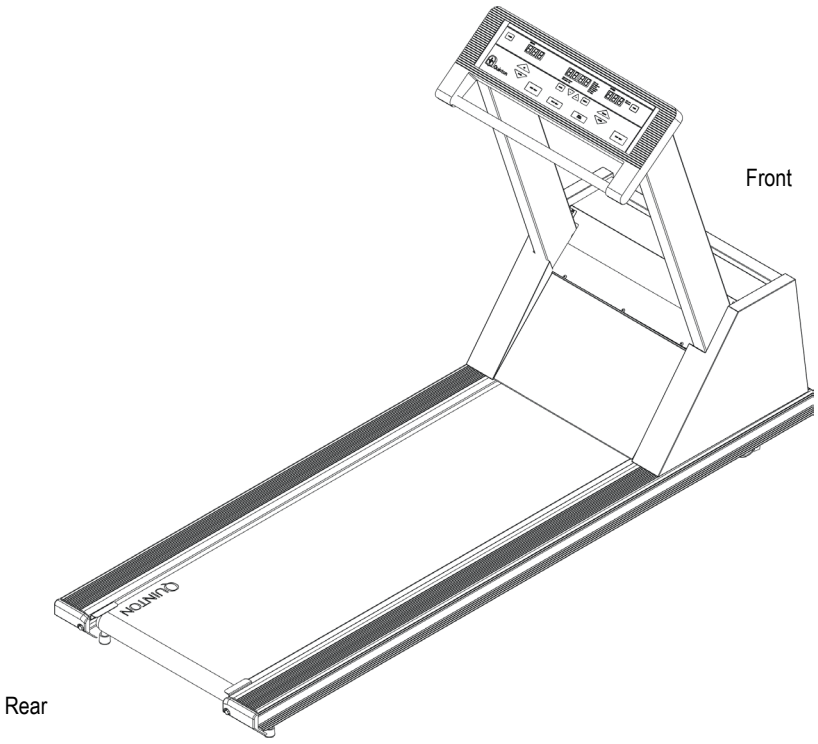
1

Introduction

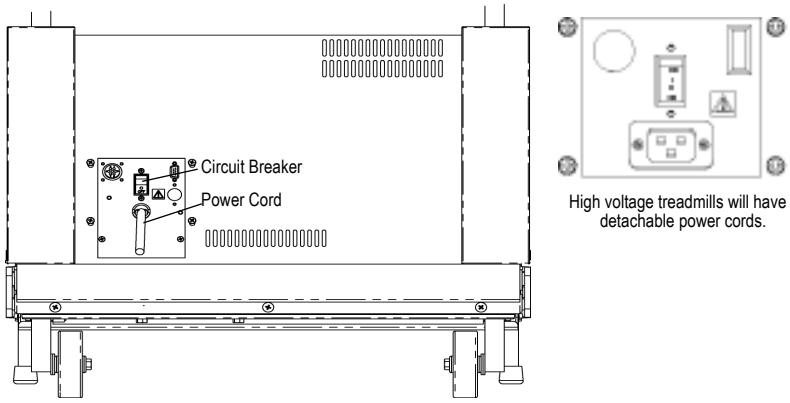
Overview

The MedTrack CR60 Rehabilitation Treadmill with a built-in controller is designed for rehabilitation exercise.



Components

Configuration Plate



Power

The circuit breaker on the front of the treadmill hood controls the power to the treadmill. The circuit breaker must be set to **ON** for the treadmill to run.

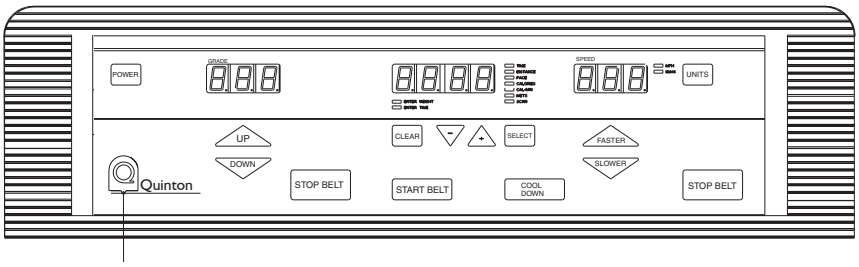
WARNING! Turn off the circuit breaker before connecting or disconnecting the treadmill from the wall outlet.

Caution! The treadmill must be on an appropriate, dedicated electrical circuit. Nothing else should be connected to the circuit.

Operation

The controller is a computerized panel used to operate the treadmill. It is mounted above the front handrail. All commands, including power, are entered by pressing a soft-touch key on the panel. Visual indicators and displays show the operational status and exercise results.

Controllers



MedTrack CR60 Controller Panel

2

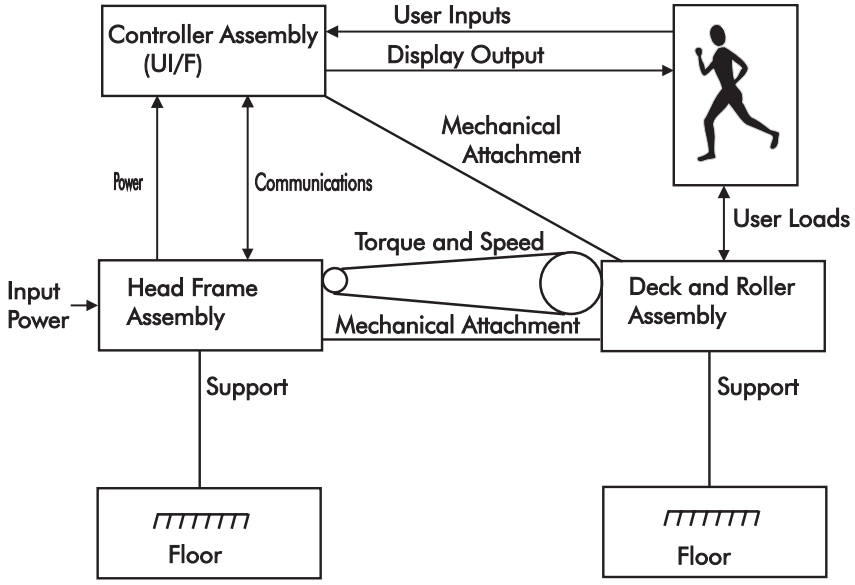
Theory of Operation

Overview

The treadmill consists of three major assemblies: the controller, the headframe, and the deck and roller assembly.

Controller Assembly

The controller assembly is the user interface. It is mechanically attached to the deck. The user presses a key on the controller to enter a command. The controller processes the user-entered information, displays all exercise data, and sends commands to the head frame assembly.



Treadmill Subassemblies

Headframe Assembly

The headframe assembly receives speed and grade commands from the controller. The headframe assembly includes the drive and grade systems and the electronics that drive these systems. A three-phase AC motor

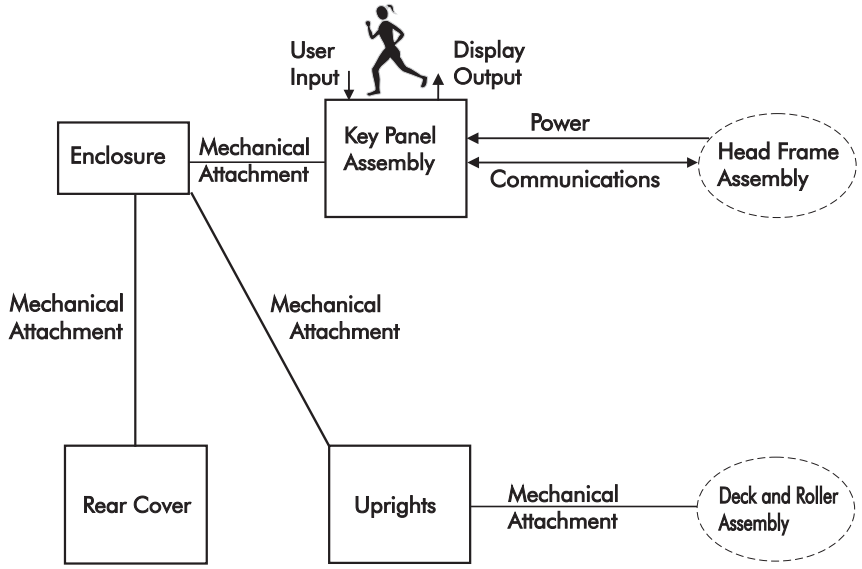
drives the walking belt. A DC motor drives the front of the treadmill up and down to simulate hills. The drive motor supplies torque and speed to the drive pulley through a drive belt.

Deck and Roller Assembly

The deck and roller assembly is attached to the headframe and supports the rear of the treadmill. It provides the platform for the walking belt. The drive belt supplies torque to the walking belt through the drive roller pulley.

Controller Assembly

The controller assembly consists of a key panel and PCBA mounted in an enclosure. The enclosure, which has a removable rear panel, mounts to the uprights.



Controller Subassemblies

Key Panel

The key panel assembly consists of a membrane key or switch panel and a PCBA. The key panel and PCBA are connected through a flexible cable that is part of the key panel. A key panel connector mates to a PCBA connector.

User Inputs

The user enters all control commands through the key panel. The controller scans the membrane switches on the key panel. The controller PCBA interprets switch closure, updates the displayed values, and sends control commands to the drive board.

Output Displays

The controller assembly uses LED displays mounted on the controller PCBA. These displays show pertinent treadmill information including target speed and grade and accumulated exercise information.

Additional Functions

The controller assembly also:

- performs an electronic self-test when the treadmill is turned on
- provides a special mode for manufacturing and service testing
- includes circuitry for the magnetic access switch.

Controller to Treadmill Interface

The controller communicates with the treadmill drive board through a standard RS422 interface. The controller sends commands to the treadmill drive board and receives acknowledge and status statements from the treadmill drive board. The controller uses 12 VDC power from the treadmill drive board as the power source for all circuitry and for the LED displays.

Headframe Assembly

The headframe assembly consists of the following components:

- Input power module
- Drive board assembly
- Transformer assembly
- Drive motor assembly
- Grade motor assembly
- Grade system consisting of a pinion shaft, rack gears, feedback potentiometer, and limit switches.

Input Power Module

The input power module receives line power from the power outlet. The MedTrack CR60 Rehabilitation Treadmill is available in two voltage ranges. Low voltage units have a nominal range of 100-120 VAC. The high voltage units have a range of 200-240 VAC.

Drive Board

The treadmill drive board uses line power to develop 300 VDC that is then used to create three-phase power for the drive motor assembly. The frequency of the three-phase signal sent to the drive motor determines the drive motor rotational speed. The motor current draw is a function of the torque load placed on the motor through the deck assembly by the user.

The treadmill drive board also uses AC power to generate a half wave rectified signal used to drive the DC grade motor. Two solid state relays drive the grade motor: one in the direction of increasing grade, the other in the direction of decreasing grade.

Drive Motor Assembly

The drive motor, which is driven by the drive board, delivers torque and speed to the front roller of the treadmill through a poly-V drive belt and a set of speed reduction pulleys. A flywheel, integral to the motor poly-V pulley, is used to average the pulsing runner loads.

Grade Motor Assembly and System

The grade motor drives the grade pinion shaft using a chain and a set of speed reduction sprockets. The grade pinion shaft in turn drives a set of rack gears, which raise and lower the front of the treadmill.

A grade potentiometer senses the rack gear movement for the grade system feedback. Limit switches limit the travel of the rack gears in the event of a potentiometer failure or incorrect calibration.

Deck and Roller Assembly

The deck and roller assembly provides the running surface for the user. This surface consists of a movable and flexible walk belt supported by a semi-rigid platform. This platform is supported by a steel-welded frame.

A poly-V drive belt, coupled through a pulley to the drive motor, drives the front roller. The front roller uses friction to drive the walk belt. A rear roller, acting as an idler pulley, tensions the walk belt. Both rollers are mounted to the steel support structure.

3

Troubleshooting

Diagnosis

The tables and flow charts in this chapter cover the following potential problems.

Electrical Problems

- Power
- Cable connections

Electronic Problems

- PCB
- Test points
- Signals

Mechanical Problems

- Noise
- Vibration
- Grade
- Speed
- Belts

Use the tables and flow charts on the following pages to diagnose problems. See Chapter 4 for repair and replacement procedures.

Tools

The following tools may be required:

- Phillips screwdrivers
- ½-inch hex socket wrench
- Mechanical stethoscope
- Digital multi-meter

Warning! High voltage is present under the hood when the treadmill is plugged into a power source; residual high voltage remains for a few minutes after the power is removed. Turn

off the treadmill circuit breaker, then unplug the treadmill from the power source before removing the hood. Use extreme caution at all times when the hood is removed.

Secure loose clothing, jewelry, and long hair before working near treadmill parts.

Never place your fingers near rotating parts.

Do not start the walk belt when someone is on the treadmill.

Electrical Problems

Use this table when:

- The treadmill will not start.
- There is no display on the controller.
- The treadmill stops unexpectedly.

Possible Cause	Action
Treadmill not plugged in.	Plug power cord into appropriate outlet.
Power not on.	Press the **Power** button on the controller.
Limited access control activated, but magnet not in place.	Place magnet on Quinton logo, then press **Power** twice (off/on). To disable the control, remove magnet, then press **+**, **-**, and **Power** simultaneously.
Circuit breaker on treadmill set to OFF.	Set treadmill circuit breaker to ON.
Building circuit breaker tripped.	Contact building maintenance to reset circuit breaker. If circuit breaker trips again: 1. Check outlet voltage. If necessary, verify that the power at the outlet and at the breaker is the correct rating for the treadmill. 2. Verify that the power cord is not caught in the rack gear. 3. Replace the configuration plate (faulty in-rush limiter).
Power cord damaged.	Remove cord from outlet and replace.
Fuse in treadmill blown.	If any of the transformer primary fuses, F1 or F2, are blown: 1. Check the primary transformer windings for continuity. Should be 2 ohms or less. 2. Replace fuses and if the fuses blow again, isolate mechanical assembly and ensure that no parts are jammed (for example, rack gear in grade change assembly). If F1 or F2 are blown, check the 12 volt power supply.
AC Drive Module failure.	Check power supply at test points. Replace AC Drive Module, if necessary.

Possible Cause	Action
Controller failure.	Replace controller circuit board.
Configuration plate connection faulty.	Check configuration plate connections; reattach or crimp, as required. Replace configuration plate.
Treadmill stops during run but **Stop Belt** button has not been pressed. No error message appears.	Look for loose ground wires. Reconnect and secure, if loose.

Electronic Problems

Error Codes

Error codes provide the first means of treadmill diagnostics. The treadmill performs an electronic self-test each time that it powers up. If a problem is detected during either power-up or operation, an error code appears on the display. Note the code recorded by the owner and reference the table of error codes.

If you replace a faulty PCB Assembly, return it to the factory and note the error code.

Code	Indication	Recommended Action
E101	Controller PCBA microprocessor failure	Replace controller.
E102	Controller PCBA EPROM failure	Replace controller.
E103	Controller PCBA interrupt failure	Replace controller.
E105	Controller PCBA NVRAM failure	Re-initialize NVRAM: 1. Press **Stop**, **Faster**, and **Slower** to enter Service Mode. 2. Press **Stop** and **Cool Down** to reinitialize. 3. Press **Clear**. 4. Reconfigure controller, see “Configuring the Controller” on page 4-26. If error E105 persists, replace controller.
E201	Grade Error	1. Enter service mode. 2. Calibrate POT. 3. If error persists, replace POT. 4. If error persists, replace AC Drive Module.

Code	Indication	Recommended Action
E203	Motor overload caused by one of the following: 1. Runner heavier than weight/speed envelope. 2. Deck wear. 3. Motor lead disconnected or loose. 4. Electrical short on the board near the power electronics. 5. Power electronic component failure. 6. Motor block by obstruction.	1. Restrict use to people within the weight/speed specifications. 2. Check deck wear; replace, if necessary. 3. If the motor does not turn, check the motor leads to ensure all leads are connected. One loose or disconnected lead will cause overload. 4. Examine board for shorts. Examine board for blackened components or discoloration. 5. Replace board, if damaged. 6. Remove obstructions.
E204	Communications Error.	Refer to “Communications Link” on page 3-12.
EPHI	AC Drive Module ABS voltage is too high. Line voltage is too high. AC Drive Module board failure.	Refer to “Bus Voltage Flow Chart” on page 3-9.
EPLO	AC Drive Module ABS voltage is too low. Line voltage is too low. Transformer connection is bad. Transformer failure. AC Drive Module board failure.	Refer to “Bus Voltage Flow Chart” on page 3-9.

Service Mode

Enter/Exit Service Mode

The treadmill provides a service mode for troubleshooting the electronics. To enter the service mode, press **Stop Belt**, **Faster**, and **Slower** simultaneously. *P000* appears in the Select display, indicating that no key is pressed.

To exit the service mode, press and release the same three keys simultaneously or press **Power** twice to power up into normal mode.

Controller Keys

To test the keys on the key panel:

1. Enter the service mode. If a key has shorted out, P555 appears in the *Select* display.
2. Using the table below, press each key in succession to display the appropriate code in the *Select* display. P000 should reappear when you release each key.

Key	Code
No key pressed	P000
Shorted Key(s)	P555
Clear	P001
Up	P002
Down	P003
Stop Belt	P004
Input +	P005
Input -	P006
Select	P007
Start Belt	P009
Units	P010
Cool Down	P013
Faster	P014
Slower	P015

Displays

To test the displays on the key panel:

1. Enter the service mode.
2. Simultaneously press **Stop Belt**, **Grade Up**, and **Grade Down**.
3. The display cycles through one digit at a time in each display, starting from left to right across the panel. Each digit displays the number **8** and the associated decimal point for one second, then turns off as the next one lights up.
4. When this is completed, the LEDs light up individually, starting from the top. The *Select* LEDs illuminate first, followed by the *Units* LEDs.
5. After the LEDs are tested, all the digits in all three displays simultaneously count up from 0 through 9. (No decimal points light during this count.)

Speed/Grade (Open-Loop Mode)

In Service mode, the treadmill operates as in open-loop mode, which is used to verify treadmill speed or grade. In this mode, the treadmill displays the actual speed or grade, rather than the target speed or grade.

Speed

1. Enter the service mode.
2. Press **Up**, **Faster**, and **Slower** simultaneously to enter open-loop speed mode.
3. Press **Stop Belt**, **Faster**, and **Slower** simultaneously to exit the service mode (P5555 is displayed); do not press the **Power** key.
4. Ensure that no one is standing on the walking belt, then press **Start Belt**.
5. Press and hold **Faster** or **Slower** to change the speed.
6. When testing is finished, press **Clear**, or press **Power** twice to exit open-loop mode.

Grade

1. Enter the service mode.
2. Press **Faster**, **Up**, and **Down** simultaneously to enter open-loop grade mode.
3. Press **Stop Belt**, **Faster**, and **Slower** simultaneously to exit the service mode (P5555 is displayed); do not press the **Power** key.
4. Press and hold **Up** or **Down** to change grade.
5. When testing is finished, press **Clear**, or press **Power** twice to exit open-loop mode.

Testing Pin Signals on the Communications Cable

Communication cable problems can cause an E204 error message. Use an ohmmeter to test for the following conditions:

1. Check each wire for continuity from one end of the cable to the other.
2. Check each wire for a short to another wire.
3. Check each wire for a short to the metal connector housing at the drive end. The following table shows signals on control cable pins.

Pin No. AC Drive Module (J12)	Pin No. Controller (J1)	Signal
1	1	T+ (Transmit+)
2	2	T- (Transmit -)
3	3	R+ (Receive+)
4	4	R - (Receive -)
5	5	GND (Ground)
6	6	N/C
7	7	GND (Ground)

Pin No. AC Drive Module (J12)	Pin No. Controller (J1)	Signal
8	8	+12 VDC
9	9	+12 VDC

- J12 is a D-sub connector. J1 is a MASCON connector.

Mechanical Problems

Mechanical problems can include noise and vibration caused by loose or worn parts. Use the following tables to diagnose mechanical failures.

Walking Belt

Problem	Action
Walk belt slipping.	Adjust walk belt tension (see “Belt Tension” on page 4-23).
Walk belt not tracking.	Adjust tracking (see “Walking Belt Tracking” on page 4-24).
Walk belt worn out.	Replace walk belt (see “Replacing the Walking Belt” on page 4-21).

Drive Belt

Symptom	Possible Cause	Action
Squealing sound similar to automobile fan belt. Walk belt slows when user’s foot strikes the deck.	Drive motor belt (poly-V drive belt) is slipping.	Adjust belt tension or replace belt.
Belt stops and an over-current error code appears.	Stopping the belt for more than 2 seconds when the belt is set to ON can cause an over-current shutdown.	1. Don’t stop belt longer than 2 seconds. 2. Turn over or replace the deck and belt.

Treadmill Noise

The following table provides a diagnostic summary of bearing noises, along with other noises that may indicate problems.

Noise	Possible Cause	Action
Knocking* or thumping. Rate increases and decreases with walking belt speed.	Front or rear roller (pulley) assembly bearings.	Isolate** and replace roller.
Squealing (similar to loose automobile fan belt).	Drive belt loose.	Adjust belt tension. Replace belt if necessary.

Noise	Possible Cause	Action
Popping during grade change.	Faulty elevation chain alignment.	Adjust alignment of sprockets.

*The type and the rate of bearing noise can help determine which bearing is at fault. The number of knocks per minute varies with treadmill speed because the roller speeds change as the belt speed changes.

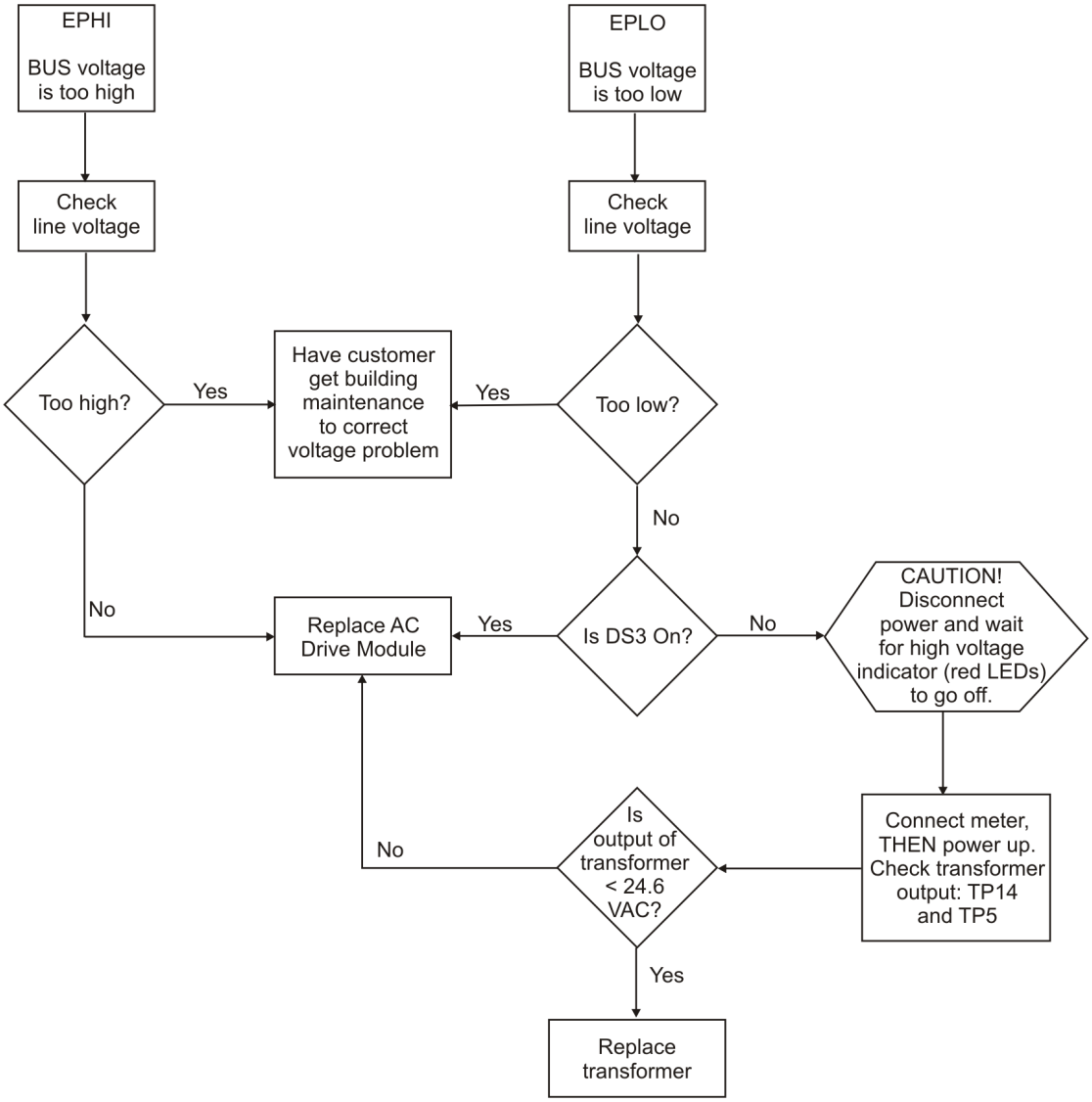
**Use a mechanical stethoscope or a piece of hose about two feet long, to isolate bearing problems. Hold one end of the hose near the suspected bearing and the other end near your ear. Compare several bearings to determine which is the faulty one.

Flow Charts

Use the flow charts on the following pages for step-by-step troubleshooting.

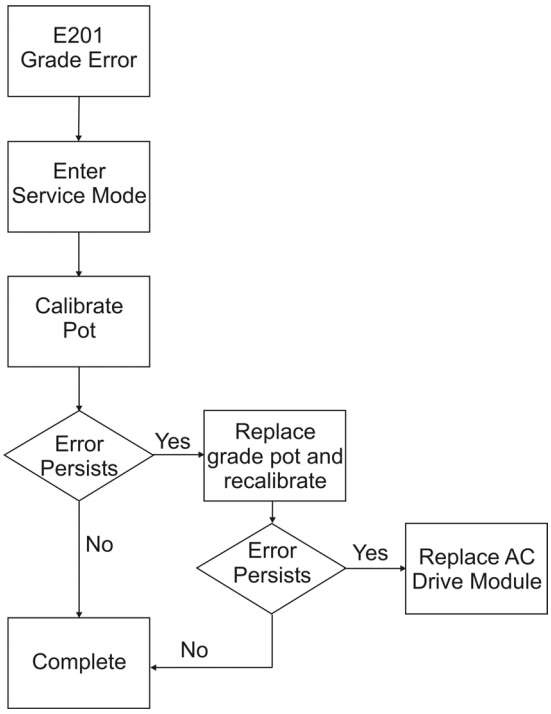
Error Code Flow Chart	Page
EPHI and EPLO	“Bus Voltage Flow Chart” on page 3-9.
E201	“Grade Error Flow Chart” on page 3-10.
E203 (Drive Motor)	“Drive Motor Error Flow Chart” on page 3-11.
E204	“Communications Link” on page 3-12.
Grade Problems	“Grade Problems Flow Chart” on page 3-13.

Bus Voltage Flow Chart



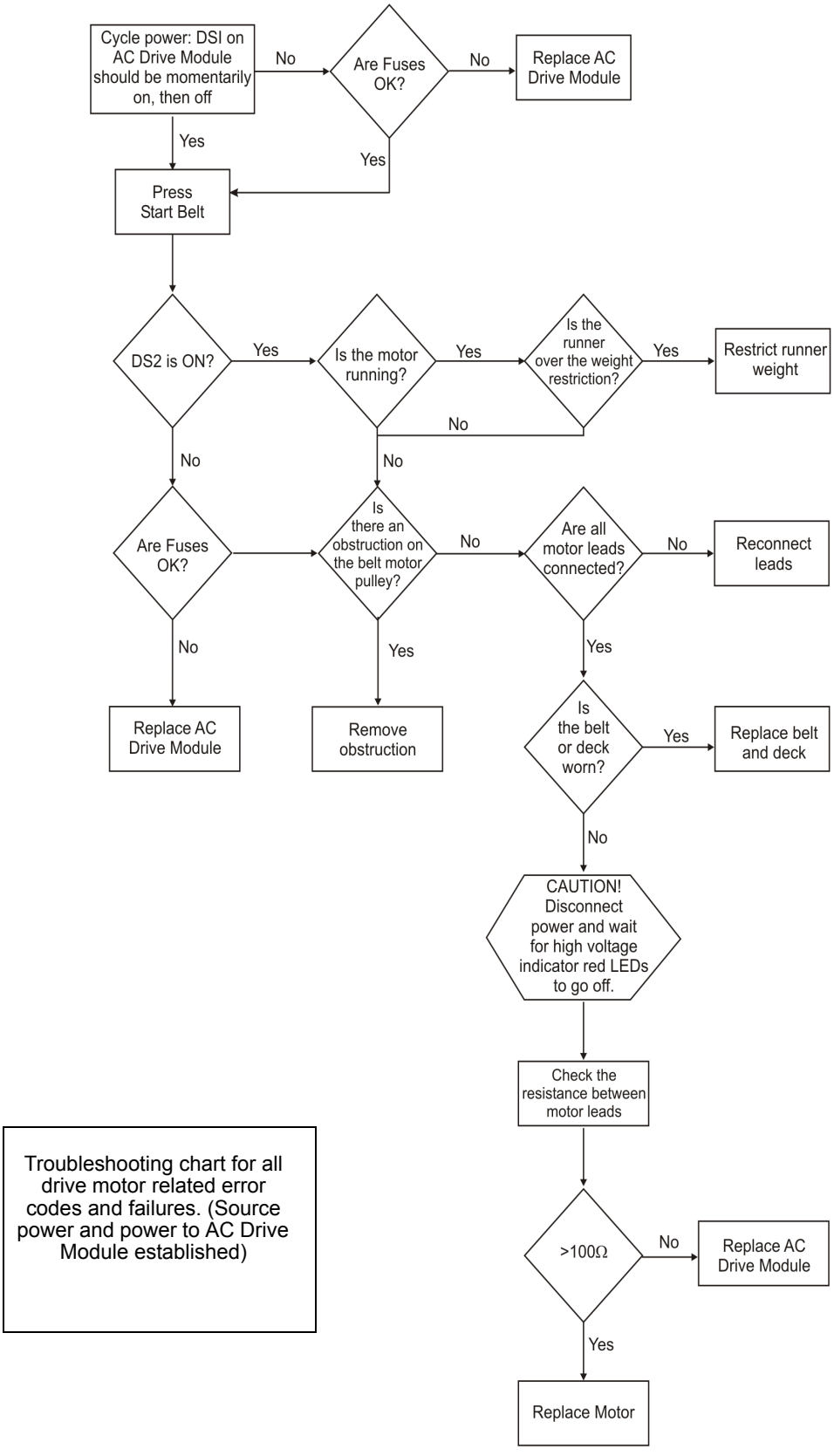
Error Code Flow Chart: EPHI and EPLO

Grade Error Flow Chart



Error Code Flow Chart: E201

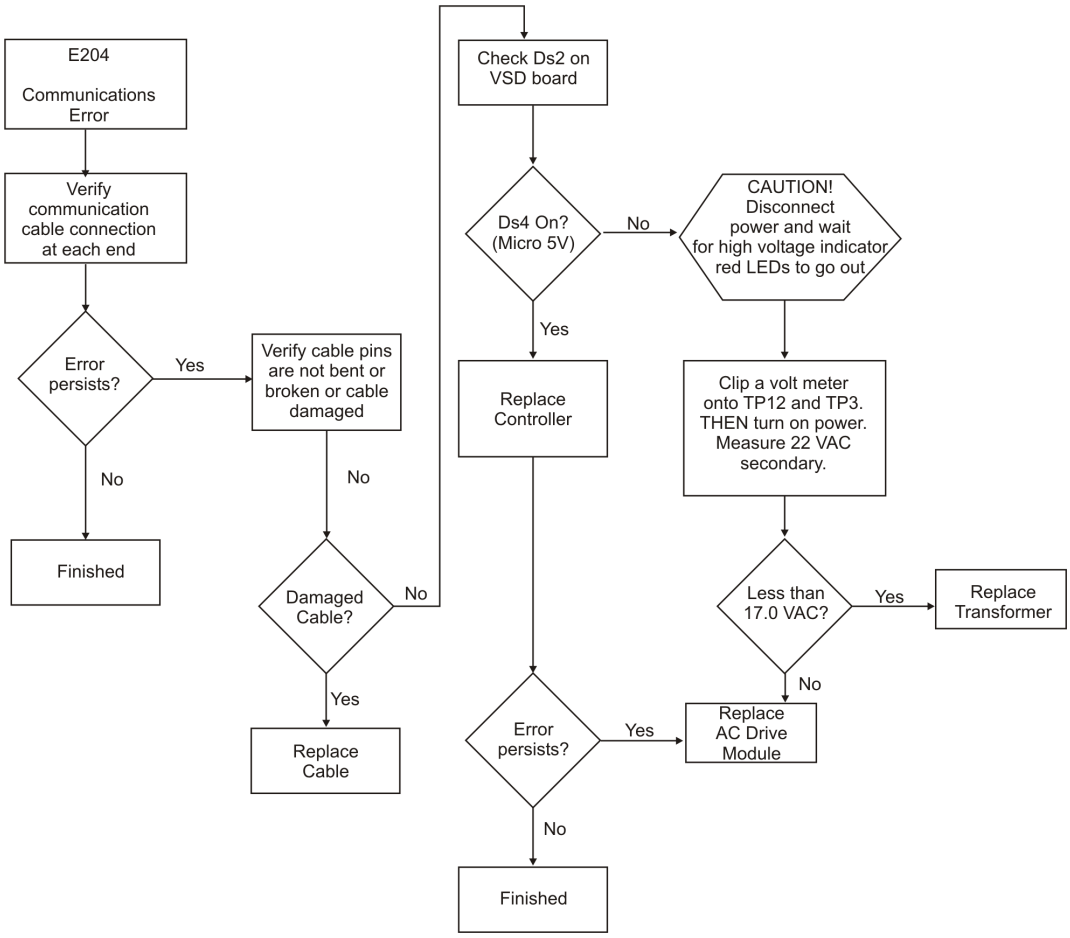
Drive Motor Error Flow Chart



Troubleshooting chart for all drive motor related error codes and failures. (Source power and power to AC Drive Module established)

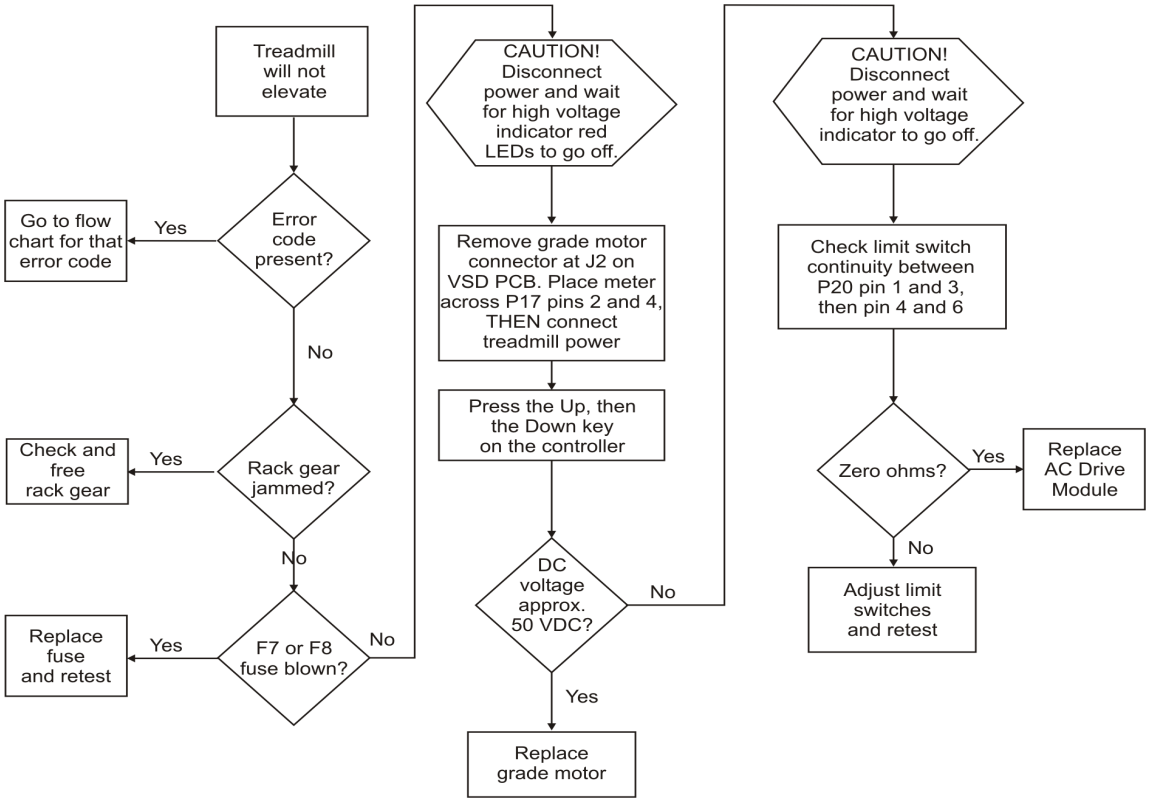
Error Code Flow Chart: E203

Communications Link



Error Code Flow Chart: E204

Grade Problems Flow Chart


Treadmill will not elevate
Error code present?
Yes
Go to flow chart for that error code
No
Rack gear jammed?
Yes
Check and free rack gear
No
F7 or F8 fuse blown?
Yes
Replace fuse and retest
No
CAUTION! Disconnect power and wait for high voltage indicator red LEDs to go off.
Remove grade motor connector at J2 on VSD PCB. Place meter across P17 pins 2 and 4, THEN connect treadmill power
Press the Up, then the Down key on the controller
DC voltage approx. 50 VDC?
No
Yes
Replace grade motor
CAUTION! Disconnect power and wait for high voltage indicator to go off.
Check limit switch continuity between P20 pin 1 and 3, then pin 4 and 6
Zero ohms?
Yes
Replace AC Drive Module
No
Adjust limit switches and retest

4

Repair/Replacement and Calibration

Field repair and replacement procedures for the treadmill are to the modular level. No procedures are included for component-level repair including:

- variable speed drive (AC Drive Module)
- enhanced display processor control unit (EDPU) used with the MedTrack rehabilitation treadmill

This section is designed only for Quinton-authorized service personnel with proper training. There are no user-serviceable parts in the treadmills. Any attempt by non-Quinton-trained personnel to service the treadmill can void the warranty. For service information, call Quinton Technical Support at 800-426-0337.

Before servicing the treadmill, read the safety requirements listed in Appendix A and the cautions and warnings printed below.

- Use this manual only for servicing the MedTrack CR60 treadmill. Do not use this manual for servicing other Quinton treadmills.

Electrical Shock

Warning! **High voltage is present beneath the treadmill hood while the treadmill is connected to a power source. Residual high voltages remain for a few minutes after the plug is removed.**

To prevent high-voltage electrical shock:

- **Turn off the treadmill circuit breaker, then unplug the treadmill and PC power cords every time you remove the hood.**
- **Before working on or around any electrical or mechanical component under the hood, wait at least two minutes from the time you unplug the power cord and be sure the red LEDs on the drive board on the AC Drive Module board are off.**

Turn off the circuit breaker on the treadmill before connecting or disconnecting the treadmill to the wall outlet.

The power control on the controller does not turn off electrical current to the treadmill.

Be sure treadmill area is free of liquid spills before removing hood.

Burns

Warning! **Allow pulleys, chain, motor, and other treadmill parts to cool sufficiently before touching them.**

Unplug the treadmill immediately if signs of overheating occur.

Mechanical Hazards

Warning! **Be sure the treadmill power cord is unplugged before working with chains, rack gear, belt, and pulleys.**

Secure long hair, loose clothing, and jewelry before working near the treadmill, particularly near walking surface and rotating parts.

Before running the treadmill, check for worn parts which could break loose during service or operation.

Keep fingers away from rotating parts.

To avoid eye contaminants, clean away dust and debris from moving parts before servicing.

Beware of sharp edges when replacing worn parts.

Do not start the walk belt when someone is on the treadmill.

Improper lifting can cause back strain. It also can cause injury to others if the treadmill is dropped. Lifting the treadmill requires at least two people.

When removing the grade motor and chain, block the treadmill headframe so that the deck will not drop to the floor, causing injury and damage.

Tools

- Phillips and flat blade screwdrivers
- Hex wrenches: 5/32 in., 9/16 in., 7/16 in., 1/2 in., 5/16 in.
- 11/32 in. nut driver
- Heyco® strain relief pliers for replacing power cord
- 1/2 in. crowfoot open-end wrench for removing drive motor
- Torque wrench for rack gear replacement, 46± 4ft-lbs
- Frequency counter

- Tachometer
- Wooden blocks
- Belt-tension calipers (optional)
- Masking tape or heavy pencil

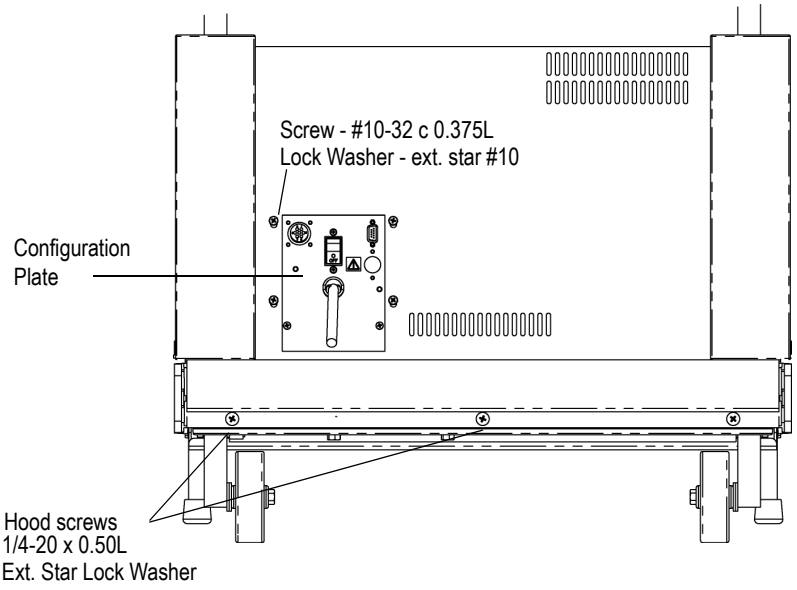
    - Although some procedures are used for several applications (removing the hood, for example), each procedure is explained only once. Reference procedures under their headings for subsequent applications.
    - All references to front, rear, left, and right are given as though you were facing the front handrail while walking on the deck.

Removing the Treadmill Hood

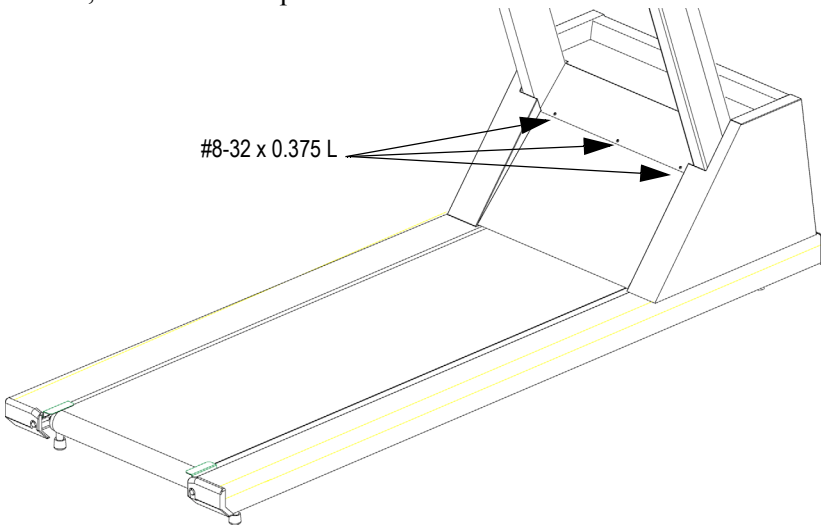
1. For your convenience in working, elevate the treadmill to its maximum height, if possible.
2. Turn off the circuit breaker on the treadmill hood, then unplug the treadmill from the power outlets.

Warning! To prevent high voltage electrical shock, wait at least two minutes from the time you unplug the power cords before working on or around any electrical or mechanical component under the hood.

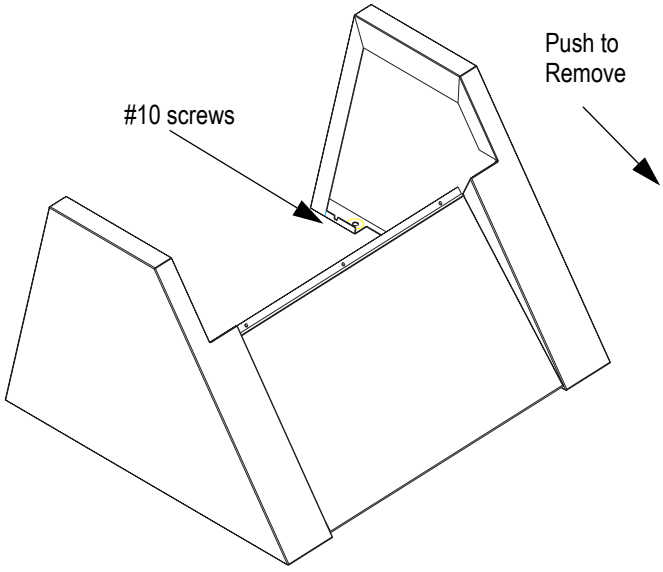
3. Remove the four Phillips-head screws from the configuration plate.
4. Remove the three ¼-20 Phillips-head screws located under the label panel on the front of the hood.



5. Remove the three #8 Phillips-head screws located on the back of the hood, above the kick plate.

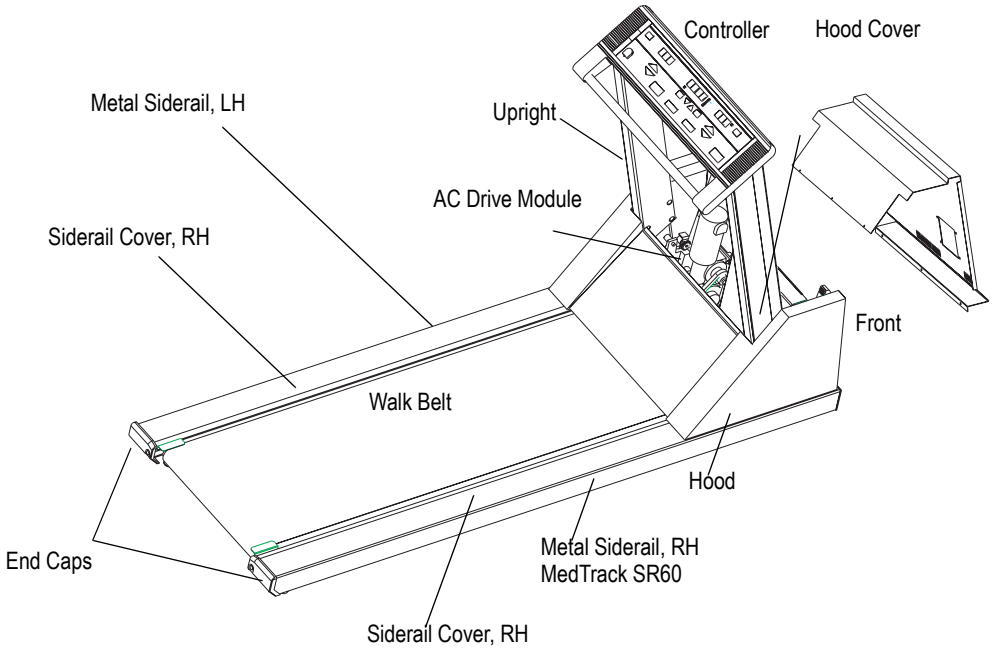


6. Grasp the front section of the hood cover at the top and bottom center. Pull and lift to remove while feeding the power cord through the hood cover opening.
7. Use a long screwdriver to remove the two screws holding the hood to the front of the siderails. Loosen the two rear screws holding the back part of the hood to the headframe.
    - **CE units**: Remove the #10 screws that hold the hood to the uprights.



8. Gently tap the hood a half inch towards the rear until the rear screws disengage from the key slots.
9. Spread the sides of the hood slightly apart to clear the uprights. Tilt the hood upward, then slide it back and lift it off the treadmill.
    - Recommended: Vacuum the internal components before replacing the hood or applying power. Use caution near the AC Drive Module. Do not vacuum the drive board on the AC Drive Module.

10. To replace the hood, follow steps 3-9 in reverse order.



Treadmill with hood removed

Replacing the Configuration Plate

On low voltage units, the configuration plate module includes the power cord, which is attached to the plate. On high voltage units, the power cord is removable and is not part of the configuration plate module.

1. Remove the power cords and treadmill hood as described in "Removing the Treadmill Hood" on page 4-3.
2. Remove the two ¼-20 screws that attach the power cord ground wires to the headframe. The screws are located in the center of the headframe—protective ground is represented by the ground symbol shown to the left. Be sure to rewire correctly.
3. Unplug the wires from the drive board on the AC Drive Module. Note the wire colors and connection points.
4. Remove the two ¼-20 screws that hold the configuration plate to the headframe.
5. Replace the configuration plate module following steps 2 through 4 in reverse order.
6. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Field Functional Test

To verify that the treadmill is operating properly, perform Field Test No. 2 beginning on page D-5.

Replacing the Power Cord

Hard-wired Cords (Low Voltage Units)

1. Remove the configuration plate as described on previous page.
2. Use strain relief pliers to squeeze the strain relief on the power cord and pull it free of the configuration plate.
3. Clip the power cord wire ties.
4. Remove the two hex nuts holding the power cord to the line filter: the hex nuts are behind the configuration plate, down and to the right.
5. Pull the power cord out of the configuration plate.
6. Feed the new cord into the configuration plate and complete the procedure by following steps 1 through 5 in reverse order.
    - Twist the power leads before connecting.
    - Connect the white wire to the bottom connector.
7. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Detachable Cords (High Voltage Units)

Unplug the power cord from the connector on the configuration plate and plug in the new cord.

Field Functional Test

To verify that the treadmill is operating properly, perform Field Test No. 2 beginning on page D-5.

Replacing the AC Drive Module

The drive board is installed within the AC Drive Module located behind the grade motor. The board alone is not field replaceable; you must remove the AC Drive Module and replace it with another AC Drive module.

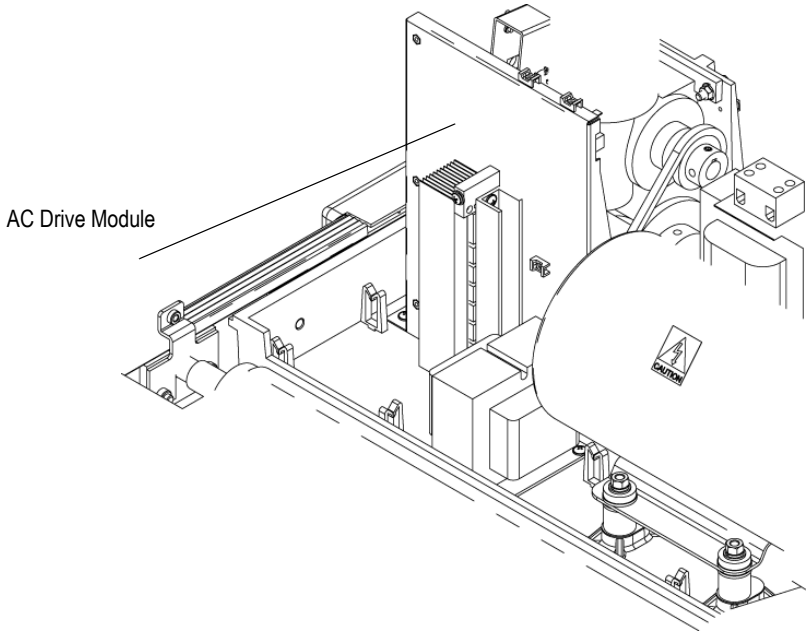
1. Remove the power cords and treadmill hood as described in "Removing the Treadmill Hood" on page 4-3.

Warning! To prevent high voltage electrical shock: Before working on or around any electrical or mechanical component under the hood, wait at least two minutes from the time you unplug the power cord and be sure the red LEDs on the AC Drive are off.

2. Disconnect the controller cable and the ground wire from the drive board on the AC Drive Module.

- In the following steps, note the connection points and the colors of the wires as you remove them from the drive board on the AC Drive Module. All the wires are harnessed. Cut the plastic ties to free the wires as necessary. Reference wiring schematic.

3. Unplug the grade motor wires from the drive board on the AC Drive Module.
4. Unplug the grade potentiometer wires. Clip the plastic ties around the cage only, not around the headframe.
5. Unplug the limit switch wires.
6. Unplug the drive motor wires.
7. Unplug the configuration plate wires.
8. Remove the four Phillips screws securing the AC Drive Module.



9. Remove the AC Drive Module and return it to Quinton with an authorized return number from your authorized technical support.
10. Reassemble in reverse order.
11. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Field Functional Test

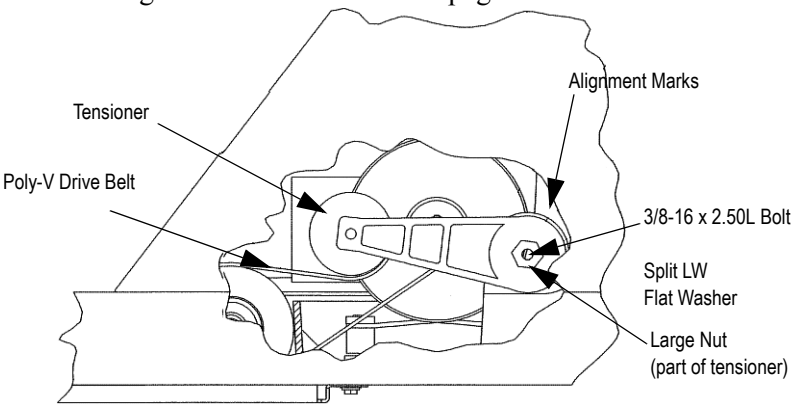
To verify that the treadmill is operating properly, perform Field Test No. 2 beginning on page D-5.

Replacing the Tensioner

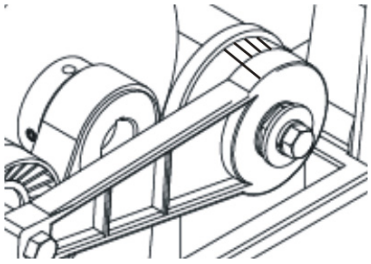
The tensioner may need to be replaced if the poly-V belt slips, if the idler pulley bearing makes noise, or if the tensioner roller is damaged.

WARNING! Do not attempt to disassemble the tensioner. The internal springs are tightly compressed and could cause injury if released.

1. Remove the power cords and treadmill hood as described in "Removing the Treadmill Hood" on page 4-3.



2. Use the 9/16-inch hex wrench to remove the 3/8-inch bolt from the tensioner. Remove and discard the old tensioner.
3. Be sure the belt is centered on the motor and roller pulleys.
4. Place the new tensioner onto the headframe in the same position as before and *loosely* bolt it to the headframe.
5. Use either a 15/16-inch open-end wrench or a large adjustable wrench to turn the *large* nut on the tensioner counter-clockwise; put tension on the poly-V belt until the two lines on the tensioner line up. Tighten the 3/8-inch bolt to 19 foot-pounds torque.



6. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Field Functional Test

To verify that the treadmill is operating properly, perform "Field Test No. 3" on page D-5.

Replacing the Poly-V Drive Belt

1. Remove the power cords and treadmill hood as described in "Removing the Treadmill Hood" on page 4-3

Caution! The drive belt tensioner is spring loaded. Do not let it snap closed after removing the drive belt.

2. Make a note where the tensioner alignment marks are located.
3. Loosen the drive belt tensioner by turning the mounting bolt counter-clockwise, then pivot the tensioner away from the belt.
4. Remove the drive belt from the drive pulley.
5. Loosen tension on the walk belt as described on page 4-23.
6. Use a ½-inch socket wrench to remove the end caps from the siderails.
7. Use a ½-inch wrench to remove the four hex bolts that hold the two front-roller retainers to the frame. There are two bolts on each side of the roller.
8. Pull up the drive roller on the right side and remove the poly-V drive belt from the roller.
9. Replace with a new belt then remount the front drive roller assembly.
    - When replacing the belt, be sure to center it on the pulleys.
10. Install retainer with bolts moderately tight (180 in/lbs).
11. Using a large screwdriver or punch, tap the retainer down above each bolt to secure the shaft.
12. Assemble the treadmill following steps 1-6 in reverse order.
13. Tension the drive belt as described on page 4-23.
14. Set the tracking as described on page 4-24.
15. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Field Functional Test

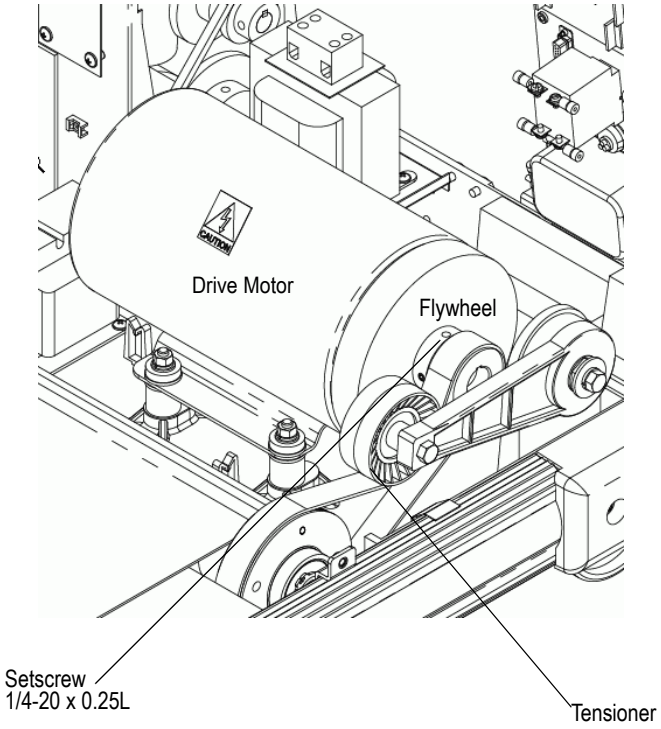
To verify that the treadmill is operating properly, perform "Field Test No. 3" on page D-5.

Replacing the Drive Motor

Replace the drive motor when the motor is inoperative: see Drive Motor flow chart on page 3-11.

1. Remove the power cords and treadmill hood as described in "Removing the Treadmill Hood" on page 4-3
2. Release the drive belt tensioner and remove the poly V-belt from the motor drive pulley as previously described on page 4-8.
3. Cut the wire ties that hold the drive motor cable to the headframe and disconnect the motor cable at the drive board on the AC Drive Module.
4. Remove the configuration plate (see page 4-5).
5. Remove the four hex nuts that hold the motor on the headframe. Note the arrangement of the isolation mounts.

6. Pull the motor off the headframe.

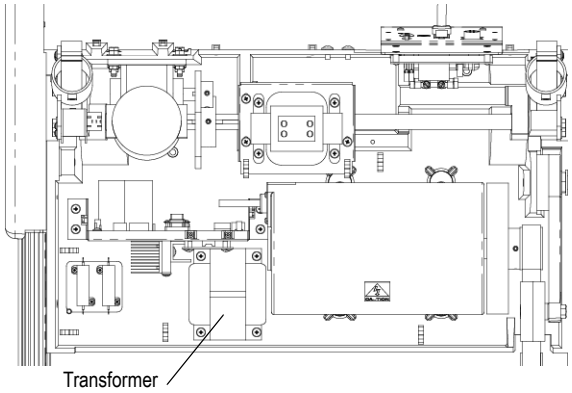


7. Loosen the two setscrews on the flywheel/drive pulley and remove. Use a gear puller to pull the flywheel off the motor shaft.
8. Reinstall the flywheel onto the motor shaft and loosely tighten the setscrews.
9. Replace the motor following steps 4 through 8 in reverse order.
    - The new motor and flywheel assembly must be aligned with the front roller drive pulley. Use a straight-edge ruler placed on the outside of the front roller drive pulley to align the outside face of the motor drive pulley to within 0.020 inch. Tighten the setscrews.
10. Replace the poly-V drive belt as described in “Replacing the Poly-V Drive Belt” on page 4-8.
11. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Replacing the Transformer

1. Remove the power cords and treadmill hood as described in “Removing the Treadmill Hood” on page 4-3
2. Unplug the transformer wires from the configuration plate PCBA. Note the wire colors and connection points. Cut the plastic cable ties that secure the transformer wiring.
3. Remove the Phillips-head screws that hold the transformer to the headframe.

4. Discard the old transformer. Replace with a new one repeating steps 2 and 3 in reverse order.



5. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Field Functional Test

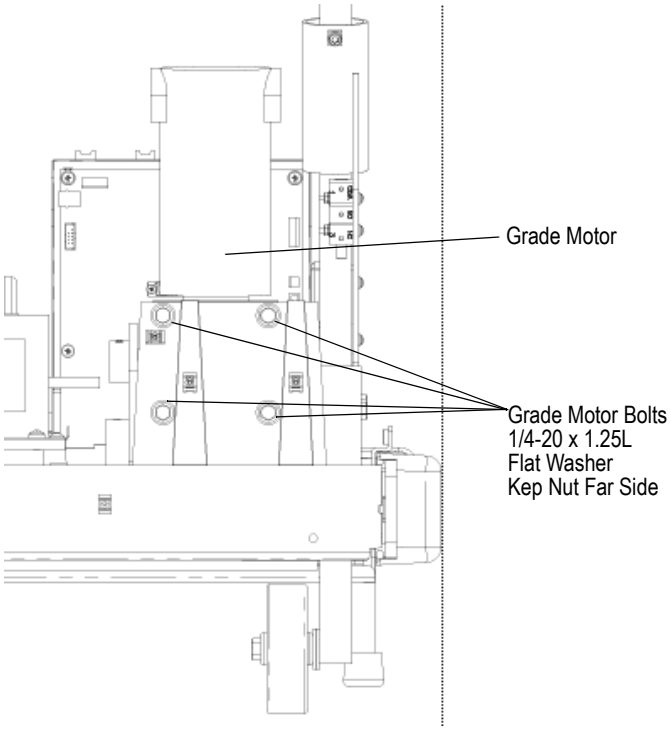
To verify that the treadmill is operating properly, perform "Field Test No. 2" on page D-5.

Replacing the Grade Motor

- Place a clean sheet of cardboard or a clean rag on the treadmill deck before starting this procedure.
- Do not elevate the treadmill.

1. Block the treadmill headframe securely with wooden blocks to ensure that the treadmill will not drop when you remove the grade motor.
2. Remove the power cords and treadmill hood as described in "Removing the Treadmill Hood" on page 4-3.

3. Disconnect the wire connector on the drive board on the AC Drive Module.



4. Follow the procedure to remove the grade motor chain (see “Replacing the Grade Motor Chain” on page 4-13).
5. Remove the four 7/16 in. hex head bolts that attach the grade motor to the headframe, then remove the motor.
6. Install a new grade motor, following steps 3-4 in reverse. Use a straight edge to align the motor sprocket with the pinion shaft chain sprocket.
7. Restore power to the treadmill and test the new grade motor.

Warning! High voltage is present when the treadmill is plugged into a power source. Secure loose hair, clothing, and jewelry before working near rotating machinery.

Verify that:

a. the treadmill operates over the full range of 0-15% grade.

b. there is no binding when it moves up or down.

c. the chain is aligned correctly. A popping sound in the chain indicates that it is misaligned.

8. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Field Functional Test

To verify that the treadmill is operating properly, perform “Field Test No. 4” on page D-5.

Replacing the Grade Motor Chain

To change the chain,

1. Block the treadmill headframe securely with wooden blocks to ensure that the headframe will not drop when you remove the grade motor.
2. Remove the power cords and treadmill hood as described in “Removing the Treadmill Hood” on page 4-3
3. Use a flathead screwdriver to pop off the C-clip master link on the chain. (If the link is inaccessible, you will have to remove the motor. See “Replacing the Grade Motor” on page 4-11.)
4. Slide out the master link.
5. Install the new chain, aligning it correctly on the sprockets. (If you had to remove the motor, reinstall it as described on previous page).
6. Replace the master link.
7. Secure the C-clip on the master link.
8. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

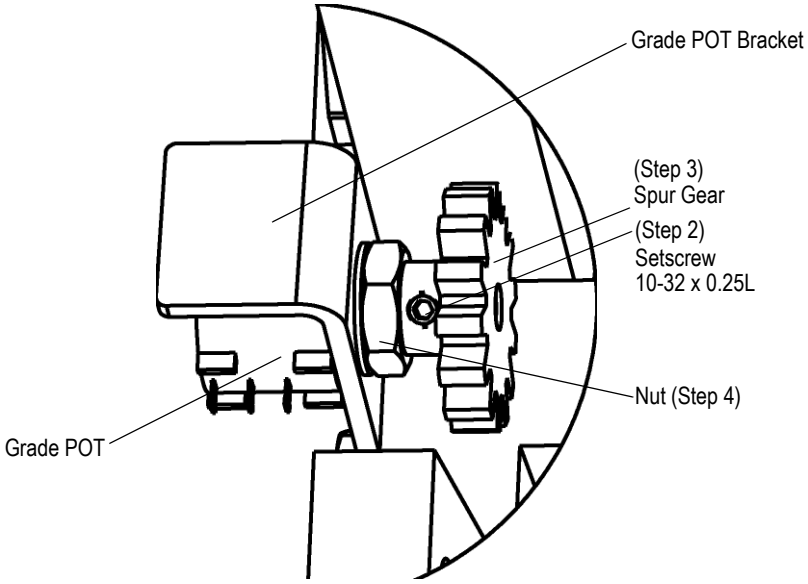
Field Functional Test

To verify that the treadmill is operating properly, perform “Field Test No. 4” on page D-5.

Replacing the Grade Potentiometer (Pot)

1. Remove the power cords and treadmill hood as described in “Removing the Treadmill Hood” on page 4-3.
2. Release the grade pot setscrew on the gear wheel.
3. Remove the grade pot gear.

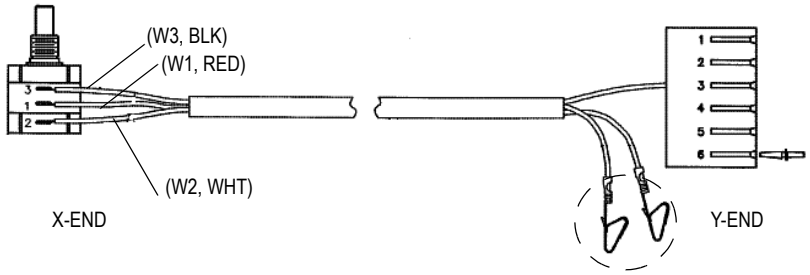
4. Remove the nut that holds the grade pot to the bracket.



5. Clip the cable ties and unplug the cable for the drive board.
6. Replace with new potentiometer, then reassemble following steps 2 through 5 in reverse order. See “Grade Pot Wires” below.
7. Tighten the nut to 20 inch-pounds torque.
8. Calibrate the grade pot as described on page 4-28.
9. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Grade Pot Wires

At the end of each grade pot wire is a pin with a small metal flange. The flange has a corresponding slot on the connector housing.



1. Insert each pin into the connector housing until it clicks slightly. The flanges will be visible through the slots in the housing.

Wire Color	Slot
Red	4
Black	5

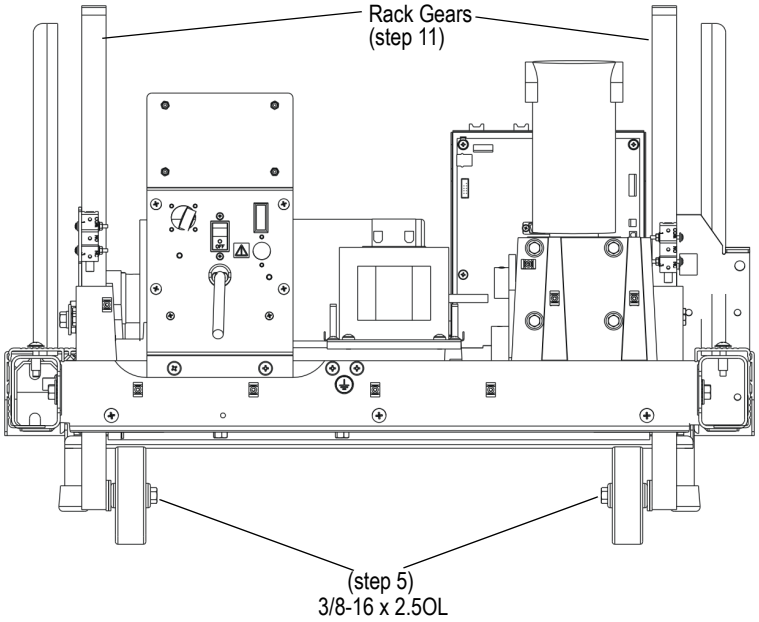
2. Verify that the pin has engaged by pulling lightly on the wire.

Field Functional Test

To verify that the treadmill is operating properly, perform “Field Test No. 4” on page D-5.

Removing the Rack Gears

1. If the treadmill will change grade, set the grade to 12% (6-7°).
2. Lower the front of the headframe onto 6-inch wooden blocks to take the weight off the wheels.
3. Remove the power cords and treadmill hood as described in “Removing the Treadmill Hood” on page 4-3.
    - If the rack gear is jammed (no play in it), replace as described on page 4-17.
4. Restore power to the treadmill and *decrease* the grade until the wheels are approximately half inch above the floor.
5. Remove the two hex-head bolts holding the wheels to the rack gears. Note the arrangement of washers used as spacers.



6. Remove the grade pot and bracket assembly (see steps 2-4, “Replacing the Grade Potentiometer (Pot) on page 4-13).
7. Rotate the grade pot until a positive number appears in the grade display window.
    - In order to enter open loop, and to accomplish step 8 the number must be positive.
8. Enter open-loop grade mode:
    a. Restore power to the treadmill. Press **Power**.
    b. Simultaneously press **Stop**, **Faster**, and **Slower** on the controller to place the treadmill in service mode. The display will read 0.0 P000 0.0.

c. Simultaneously press **Faster**, **Up**, and **Down**. The display will ready 0.0 P000 0.0.

d. Simultaneously press **Stop**, **Faster**, and **Slower** to exit service mode. The display should read 0.0 P555 0.0. You are now in open loop mode.

- While in open loop mode the treadmill takes about two seconds to react to a command.

9. (Requires two people) Decrease grade until rack gears start bouncing on the pinion shaft. Hold the limit switches closed to let the rack gear travel beyond its normal range. Rotate the grade potentiometer as required to maintain a positive grade display.
10. Turn off the treadmill circuit breaker and unplug the treadmill.
11. Lift rack gears straight out top.

Reassembling the Rack Gears

Install new rack gears at the same time so that they are parallel and extend an equal distance through the headframe.

1. Restore power to the treadmill.
2. Enter open-loop grade mode as described above.
3. Insert rack gears into headframe.
4. Decrease the grade until the gears bounce two or three times, then increase the grade. This should cause both rack gears to mesh in exactly the same place.
5. Run the rack gears down past the bottom of the headframe. Hold the limit switches closed to let the rack gear travel beyond its normal lower limit.
6. Check below the headframe to verify that the rack gears are meshing properly. The gears should protrude an equal distance.
7. Run the rack gears down until there is enough room to replace the wheels.
8. Bolt the wheels to the rack gears.
   a. Replace washers used as spacers in the correct arrangement.
   b. Install wheel bolts.
   c. Torque the bolts tightly to 46 ft-lb ±4 ft-lb.
9. Increase the grade until the wheels touch the floor.
10. Grease the rack gears with wheel bearing grease.
11. Remove the blocks that support the headframe.
12. Reinstall the grade pot gear.
13. Calibrate the grade potentiometer as described on page 4-28.
14. Turn the treadmill power off.

15. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Field Functional Test

To verify that the treadmill is operating properly, perform "Field Test No. 4" on page D-5.

Replacing a Jammed Rack Gear

1. Remove the power cords and treadmill hood as described in "Removing the Treadmill Hood" on page 4-3.
2. Block the headframe securely with wooden blocks to take the weight off the wheels.
3. Shake each gear lightly at the top to determine which rack gear is jammed. If there is no play in a rack gear, it is jammed.
4. Remove the rack gear wheels from the rack gear. Note the arrangement of washers used as spacers.
5. Remove the upright assembly.
    a. Unbolt the six hex-head fasteners to let the treadmill uprights pivot. Note the order of the washer placement for reinstallation: the star washer is next to the upright bracket.
    b. Carefully lower the upright assembly onto the walk deck.
    c. Disconnect the controller cable and the ground wire from the drive board.
    d. Use a 3/16 in. Allen wrench to remove both pivot bolts from the two upright assemblies. Then remove the assembly.
6. Remove the treadmill walk belt and deck from the headframe as explained in "Replacing the Walking Belt" on page 4-21 and "Replacing the Deck" on page 4-22.
7. Use a 9/16 in. socket wrench with a 6-in. extension to remove the two hex-head bolts securing each siderail to the headframe. Reach the bolts through the holes in the siderail.
    - If you are replacing only one rack gear, it is necessary to remove only the siderail closest to that gear.
8. Remove the grade pot gear. Remove the four bolts that hold the rack gear cover plate in place and move it out of the way.
9. Slide the rack gear out sideways.
10. Inspect the gear on the pinion shaft. If it is damaged, replace *both* the rack gear and the pinion shaft as described below.
11. Bolt the handrail bracket back into place.
12. Reassemble the siderails, upright assembly and walk belt.
13. Restore power and decrease the grade to run the other rack gear out the top.

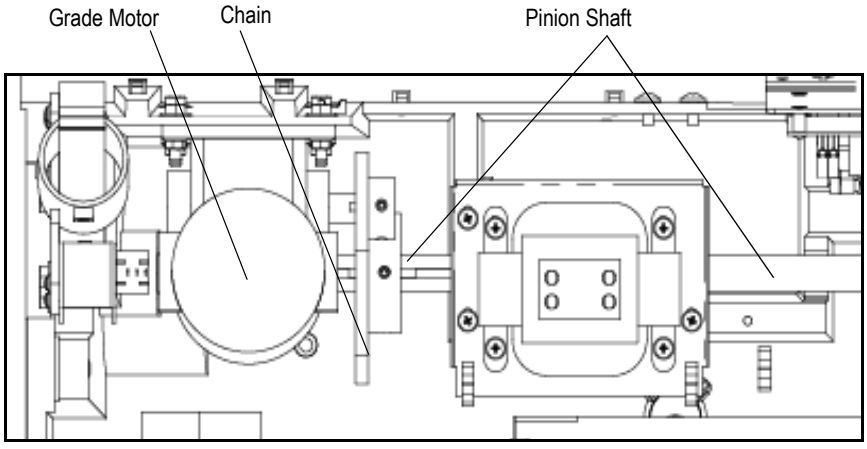
14. Reassemble the rack gear as described on page 4-16.
15. Calibrate the grade potentiometer as described on page 4-28.
16. Test the treadmill grade. Verify that:
    a. it operates over the full range of 0-15%.
    b. there is no binding when it moves up or down.
    c. the chain is aligned correctly. A popping sound in the chain indicates misalignment.
17. Turn the treadmill off and unplug it.
18. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Field Functional Test

To verify that the treadmill is operating properly, perform "Field Test No. 4" on page D-5.

Replacing the Pinion Shaft

1. Remove the power cords and treadmill hood as described in "Removing the Treadmill Hood" on page 4-3.
2. Remove the right siderail, then remove the rack gear as previously described for jammed rack gears on page 4-17.
3. Restore power to the treadmill, then use the grade motor to turn the pinion shaft until the setscrew on the grade pot sprocket is visible.



4. Turn off the power and the treadmill circuit breaker, then unplug the treadmill.
5. Loosen the setscrews from the grade sprocket.
6. Remove the grade motor chain as described on page 4-13.
7. Slide out the pinion shaft.

8. Slide the new pinion shaft into place: be sure to reinstall the grade sprocket and key while installing the pinion shaft.
9. Replace the rack gear cover plate.
10. Use a straight edge to align the grade sprocket and grade motor sprocket, then tighten the setscrew on the socket.
11. Replace the grade motor chain as described on page 4-13.
12. Reassemble the rack gear.
13. Adjust the walk belt tension as described in "Belt Tension" on page 4-23
14. Calibrate the grade potentiometer (see "Calibration Procedures" on page 4-28).
15. Test the treadmill grade. Verify that:
    a. it operates over the full range of 0-15%.
    b. there is no binding when it moves up or down.
    c. the grade motor chain is aligned correctly. A popping sound in the chain indicates misalignment.
16. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Field Functional Test

To verify that the treadmill is operating properly, perform "Field Test No. 4" on page D-5.

Adjusting the Grade Limit Switches

Grade limit switches prevent the treadmill from exceeding the preset maximum grade. When a roller on the limit switch reaches a trigger in each rack gear, a lever moves inward, opening the switch and stopping the grade motor. Two grade limit switches, one on each side of the treadmill, are mounted on brackets attached to the front of the headframe.

- Grade limit switch settings are preset at the factory and normally do not require adjustment. They should be adjusted if the rack gear is changed.

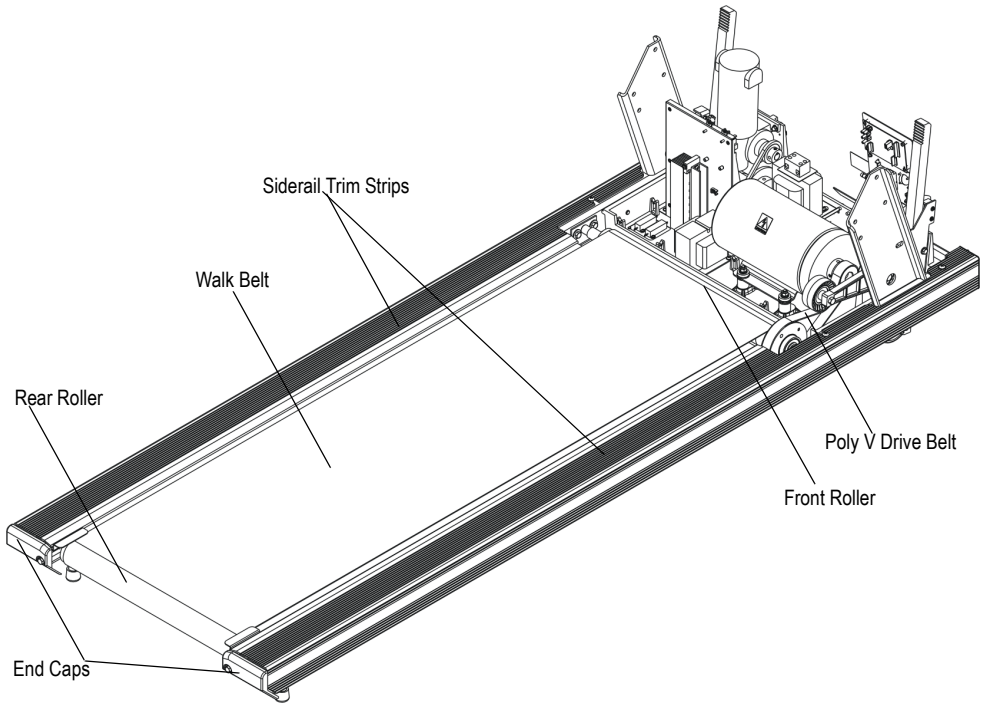
1. Remove the power cords and treadmill hood as described in "Removing the Treadmill Hood" on page 4-3.
2. Loosen, but do not remove, the two Phillips screws that secure each grade limit switch to its bracket.
3. Pivot the switch on the upper screw towards, then away from, the rack gear. You should hear a click as the switch opens or closes.
4. Set the switch wheel on a flat part of the rack gear. Pivot the switch towards the rack gear just until it clicks, then tighten both screws.
5. If required, repeat steps 2-4 for the other grade limit switch.
6. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

7. Restore power and turn on circuit.
8. Operate the treadmill to verify that it reaches the upper and lower grade limits (15% and 0%).

Field Functional Test

Ensure that the grade will traverse from minimum to maximum and back.

Walking Deck Assembly



Replacing Rollers

1. Remove the power cords and treadmill hood as described in “Removing the Treadmill Hood” on page 4-3. Remove optional siderails.
2. Remove the poly-V drive belt as previously described in “Replacing the Poly-V Drive Belt” on page 4-8.
3. Remove the end caps from both sides of the belt at the rear of the walking platform.
4. Remove the siderail trim strips.
5. Remove the four ½-inch hex bolts (two on each side) that hold the two front roller retainers to the siderail.
6. Slide the front roller up and out from the walk belt.
7. Pull the walk belt towards the rear of the deck, then slide the rear roller out from between the siderails toward the rear of the treadmill.

8. Replace the rollers and reassemble the treadmill following steps 1-7 in reverse order.
9. Adjust the walk belt tension and tracking using the procedures on the following pages.
10. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

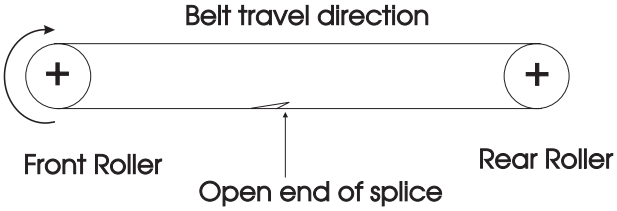
Field Functional Test

To verify that the treadmill is operating properly, perform "Field Test No. 3" on page D-5.

Replacing the Walking Belt

- The Walking Deck is two sided. Each side comes with a waxed surface. When replacing the walking belt, flip the walking deck so that the unused waxed surface is on top. If there is no wax, replace the walking deck also. See "Replacing the Deck" on page 4-22.
- The following steps are oriented as though you were exercising on the treadmill.

1. Lower the treadmill to zero grade.
2. Remove the power cords and treadmill hood as described in "Removing the Treadmill Hood" on page 4-3.
3. Remove the front and rear rollers as previously described.
4. Remove the two Phillips screws from the siderails. These screws attach the hood to the siderails at the front of the hood.
   - When replacing the screws, the gap between the siderail cover and the head of each screw must be 0.050 in. ±0.010, approximately the thickness of a dime.
5. Grasp the left siderail cover at the rear of the treadmill, then pull it up and away from the treadmill to roll the cover off. Repeat for the right cover.
6. Remove the 12 screws that hold the deck to the siderails.
7. Remove the deck and belt.
8. Install a new belt, rough side up, and reassemble the treadmill following steps 1-7 in reverse order.
   - When you install a new belt, verify that the closed end of the splice on the walk belt hits the roller first as the belt rotates.



9. Adjust the belt tension and tracking.

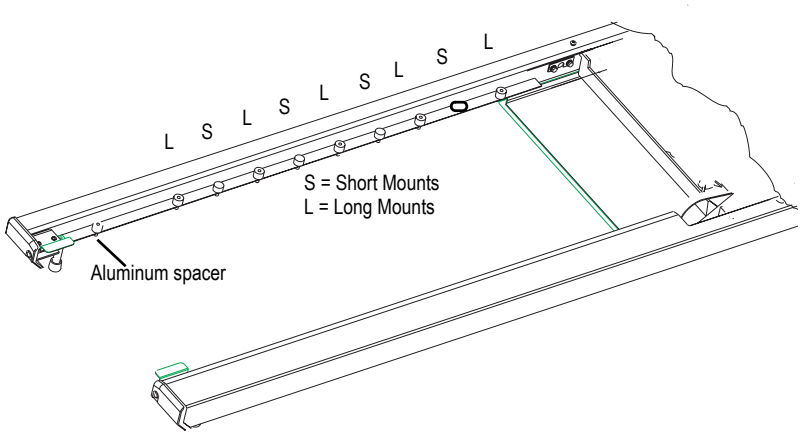
Field Functional Test

To verify that the treadmill is operating properly, perform "Field Test No. 3" on page D-5.

Replacing Compression Mounts

Inspect the compression mounts each time you change the walk belt. Replace the mounts, if worn.

1. Remove the deck as explained in "Replacing the Walking Belt" on page 4-21.
2. Locate and unscrew the compression mounts from the inside of each siderail. There are five long mounts and four short mounts on each siderail. The front two mounts are attached with hex nuts underneath.



3. Unscrew the mounts from each siderail and replace.
4. Replace the deck as described in the next section.

Field Functional Test

To verify that the treadmill is operating properly, perform "Field Test No. 3" on page D-5.

Replacing the Deck

- The deck is reversible. You can turn it over if one side wears out.

Follow steps 1 through 7 in "Replacing the Walking Belt" on page 4-21 to remove and replace the deck.

Field Functional Test

To verify that the treadmill is operating properly, perform "Field Test No. 3" on page D-5.

Adjusting the Walking Belt

Belt Tension

Adjust the walk belt tension:

- whenever the belt slips or moves unsteadily during operation.
- after installing a new walk belt.
- each time you remove or replace the walk belt or deck.

Two adjustment methods are specified. Method 1 is preferred, but two belt tension calipers are required.

- ♦ Both adjustment screws must be completely slack before starting this procedure.

Method 1: Using Calipers

1. Turn both tension adjustment screws clockwise until most of the slack is removed from the belt.
   - ♦ Do not stretch the walk belt at this point.
2. Position one caliper on each side of the belt, approximately 18 inches from the rear roller assembly.
3. Grasp the belt with one caliper clamp.
4. Pull the slack out of the belt with your fingers, then grasp the belt with the second clamp.
5. Repeat steps 3 and 4 on the other side of the belt using the other caliper.
6. Set the dials of both calipers to zero.
7. Alternately tighten each tension adjustment screw in 0.1% increments until both sides read 0.4%. Be sure that the pointer is exactly on the line increment of the dial for each setting.

Caution! Do not overtighten the adjustment screws. Overtightening can damage the walk belt and roller assemblies.

8. Remove both gauges.
9. Adjust the walk belt tracking.

Method 2: Without Calipers

- ♦ Both adjustment screws must be completely slack before starting this procedure.

Use this method only if two belt tension calipers are not available. An accurate measuring device is required.

1. Turn both tension adjustment screws clockwise until most of the slack is removed from the belt.
   - ♦ Do not stretch the walk belt at this point.
2. Place two pieces of masking tape or two light pencil marks on the right edge of the belt exactly 50.000 inches apart.

3. Repeat step 2 on the left edge of the belt.
4. Alternately turn the left and right adjustment screws one-half turn until the distance between the tape or pencil marks is 50 13/64 inches ±1/64 on both sides.

Caution! Do not overtighten the adjustment screws. Overtightening may damage the walk belt and roller assemblies.

5. Remove the tape.
6. Adjust the walk belt tracking.

Walking Belt Tracking

Perform this procedure:

- whenever the belt moves to one side
- after installing a new walk belt.
- each time you adjust the walk belt tension.

Warning! Do not stand on the belt when adjusting the tracking. Do not start the treadmill when someone is on the walk belt.

1. Start the treadmill and let it run for at least one minute at minimum speed and grade.
2. Make the following adjustment to the *right* adjustment screw only:
   a. If the belt moves to the right, turn the screw ¼ turn *clockwise*.
   b. If the belt moves to the left, turn the screw ¼ turn *counterclockwise*.
3. Run the treadmill for at least one minute to observe the tracking. Adjustments to belt tracking take some time to become apparent.
4. Repeat steps 2 and 3 as required.

Caution! Do not overtighten the adjustment screw. Overtightening can damage the walk belt and assemblies.

5. Increase the speed to 7 mph, then repeat steps 2 and 3 as required.
6. Press **Stop Belt** to stop the treadmill, then press **Power** to turn it off.

Controller Assembly

The controller assembly includes the key panel, the PCBA, and the enclosure that holds them to the treadmill. The MedTrack CR60 uses the enhanced display processor unit (EDPU).

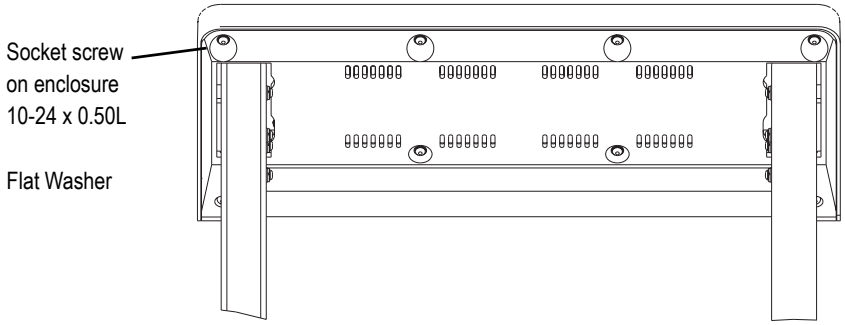
You must configure the controller correctly after installing. See “Configuring the Controller” on page 4-26.

Removing the Enclosure

1. Turn the treadmill power off and disconnect the power cord from the power source.
2. Remove optional siderails if present.

Caution! While performing steps 3-7, hold the enclosure securely, so that it does not fall while you are removing the screws and the handrail. Be careful not to scratch the uprights.

3. Use a 1/8-inch Allen wrench to remove the six socket screws from the rear cover of the enclosure.



4. Use a 3/16-inch Allen wrench to remove the two socket screws near the handrail.
5. Slide the cover down the uprights to expose the PCBA.
6. Disconnect the controller cable, located on the left side of the PCBA.
7. Remove the hex nut that holds the ground wires to the chassis, then remove the wire.
8. Cut the cable tie that holds the cable to the controller.
9. Use a 5/32-inch Allen wrench to remove the four socket-head screws that attach the controller assembly to each upright.
10. Lift the entire controller assembly clear of the uprights.
11. Reassemble following steps 2-10 in reverse order.

Field Functional Test

To verify that the treadmill is operating properly, perform Field Test No. 5. See page D-6 for specific instructions.

Replacing the PCBA

1. Turn the treadmill off and disconnect the power cord from the outlet.
2. Use a 1/8-inch Allen wrench to remove the six screws from the rear panel of the enclosure.
3. Use a 3/16-inch Allen wrench to remove the two socket screws near the handrail.

4. Slide the rear cover down the uprights.
5. Remove the hex nut that attaches the PCBA groundwire, then remove the wire.
6. Unplug the control cable from the PCBA.
7. Remove the Phillips screws that hold the PCBA to the key panel.
8. Lower the PCBA, then unplug the ribbon cable connecting it to the key panel.
9. Remove the PCBA from the enclosure.
10. Replace the PCBA and reassemble following steps 3-10 in reverse order.

Configuring the Controller

When you replace a controller, you must configure it to work with the specific treadmill.

Perform the following steps to configure the treadmill.

1. Enter the service mode by simultaneously pressing **Stop Belt**, **Slower**, and **Faster**.
2. Choose the appropriate configuration number from the following:

Treadmill Configuration	Configuration No.
1-12 MPH	CP3
0.6-7.2 MPH	CP1
No configuration	CP- -

3. Hold down **Stop Belt** and press the **+** or **-** key until the correct configuration number appears in the center display.
4. Press **Select** to store the configuration.
5. Exit the service mode by simultaneously pressing Stop Belt, Slower, and Faster.

Field Functional Test

To verify that the treadmill is operating properly, perform Field Test No. 1. See page D-4 for specific instructions.

Removing the Key Panel

To remove the key panel:

1. Remove the PCBA following the above procedure.
2. Remove the 10 hex nuts that hold the key panel to the enclosure.
3. Lift the key panel off the enclosure.

Replacing the Controller Cable

1. Disconnect the power and remove the hood as described on page 4-3.
2. Remove the controller assembly as described on page 4-24.
3. Cut any cable ties that fasten the controller cable to the headframe.
4. Detach the cable ground wire at the drive board.
5. Pull the cable up through the left upright to remove it.
6. Install a new cable following steps 1-5 in reverse order.

Field Functional Test

To verify that the treadmill is operating properly, perform Field Test No. 5. See “Field Test No. 5” on page D-6 for specific instructions.

Cumulative Use

The Cumulative Use feature lets you determine the amount of wear on the belt and motor by displaying the total distance or total time of use for each treadmill. This data can be useful for scheduling service.

- The cumulative time and distance are stored in the controller. Both values are zero if a new controller is installed. Loading a factory default program will reset the time and distance to zero.

Distance

To determine the total distance on each treadmill:

1. Press Power to turn on the treadmill controller.
2. Simultaneously press **Stop** and **Slower**.
3. Multiply the number that appears in the multifunction display by 10 to obtain the cumulative total in miles or hours.
4. Record the mileage and the date for your records.
5. Press **Clear** to reset the display for operation.

Time

To determine the total time of treadmill use:

1. Press **Power** to turn on the treadmill controller.
2. Simultaneously press **Stop** and **Faster**.
3. Multiply the number that appears in the center display by 10 to obtain the total number of hours of operation.
4. Record the total time and the date for your records.
5. Press **Clear** to reset the display for operation.

Limited Access Switch

If the limited access control is on, the treadmill will not operate unless the magnetic key is on the Quinton logo on the controller.

Disabling the Limited Access Switch

1. Remove the magnetic key and press **Power** to turn off the treadmill.
2. Simultaneously press and hold the **+**, **-**, and **Power** keys until the 8s on the display go off, then release the keys.

The control remains inactive, allowing unrestricted access, until you place the key over the logo again.

Calibration Procedures

Grade Potentiometer (Pot) Calibration

Calibrate the grade pot whenever specified in the procedures in this chapter.

1. Disconnect power and remove the hood (as described on page 4-3).
2. Loosen the setscrew that holds the grade pot gear to the grade pot shaft.
3. Restore power to the treadmill.

WARNING! Maintain caution when working near moving parts.

4. Enter open-loop grade mode:
    - ♦ In order to enter open loop mode, grade must be positive.

    a. Press **Power**.

    b. Simultaneously press **Stop**, **Faster**, and **Slower** on the controller to place the treadmill in service mode. The display will read **0.0 P000 0.0**.

    c. Simultaneously press **Faster**, **Up**, and **Down**. The display will read **0.0 P000 0.0**.

    d. Simultaneously press **Stop**, **Faster**, and **Slower** to exit service mode. The display should read **0.0 P555 0.0**. You are now in open loop mode.
        - ♦ While in open loop mode, the treadmill takes approximately two seconds to react to a command.
5. Lower the grade until the treadmill is level.
6. Measure from the bottom of the siderail to the floor at both the front and rear of the treadmill. Adjust the grade until both measurements are identical.

7. Rotate the grade pot shaft with a screwdriver until the grade display reads **0.0**.
8. Tighten the setscrew and verify that the display still reads **0.0**.
9. Press **Clear** to exit open-loop mode.
10. Verify that the treadmill operates through its full grade range (0 – 15%) and that the treadmill is nearly all the way to the top of the rack gear when the display reads 15%.
11. Turn off the power and disconnect the power cord from the power outlet.
12. If no other service is required, replace the treadmill hood as described in step 10, page 4-5.

Speed Calibration

The speed of the belt can be checked for accuracy. The display and control are digitally controlled and cannot be adjusted. See “Test E. Test Speed Operation” on page D-3.

Grade Calibration

The treadmill grade is controlled through the grade pot and grade pot installation procedure and cannot be adjusted. See “Test D: Test the Grade Operation” on page D-3.

5

Preventative Maintenance

Warning! Before working on the treadmill or its components, turn off the treadmill circuit breaker and unplug the power cords.

High voltages remain under the treadmill hood for a few minutes even after the plug has been removed.

Secure long hair, loose clothing, and jewelry before working near the treadmill, particularly near the walking surface or pulleys.

Do not permit anyone to stand on the treadmill belt when it is started.

Recommended Service

Routine service is necessary every six (6) months. When service is required, repairs can be done to the modular level.

Routine Maintenance

Visual Inspection

- Inspect the treadmill power cord for wear. Inspect all connector cables and the power receptacle. Check for worn or damaged plastic coverings, frayed or broken wires, cracked connections, and other signs of damage.
- Inspect the walking belt for wear. Be sure it is not rubbing against the frame. The belt should be centered within 0.25 inch of the sides; adjust if necessary.
- Check optional siderails to be sure they are fastened securely.
- Remove potential hazards from the treadmill area.

Cleaning the Treadmill Surfaces

Follow these steps to clean the treadmill after servicing or as required:

1. Elevate the treadmill to maximum height and vacuum the floor under it to prevent excess dust and dirt from interfering with operation.

2. Clean the treadmill exterior with a damp sponge, then dry thoroughly.

Caution! Never wipe the deck under the belt, even when replacing a belt. Wiping can damage the surface.

Do not use detergents or cleaning agents on any part of the deck.

Do not let liquid enter the treadmill interior. If it does, inspect and test the equipment for safety before using it again.

Disinfection

Disinfection, when necessary, is the responsibility of the individual facility, which should follow its own established procedure. Do not use liquids on the deck surface.

Vacuuming Under the Treadmill Hood

Dust and dirt beneath the hood can restrict the air flow needed to cool the unit and dissipate heat from the drive motor and AC Drive Module. To prevent damage to components, periodically vacuum the mechanical drive and the area behind the AC Drive Module.

Frequency

Treadmill use and environment determine how much dust accumulates and how frequently you need to vacuum the components. Inspect the internal components at least every six months. Adjust the inspection schedule as needed. If significant accumulations occur more frequently, vacuum as needed.

Warning! To avoid electric shock, turn off the treadmill circuit breaker and unplug the treadmill and PC power cords before removing the hood. Before working near components, wait at least two minutes from the time you unplugged the power cord. Be sure the red LED on the drive board is off.

The power control on the PC does not turn off electrical current to the treadmill.

Caution! Use extreme caution to avoid physical damage to the internal components. Avoid static discharge, which can damage the electronic components.

1. Remove the hood as described on “Removing the Treadmill Hood” on page 4-3.
2. Vacuum the areas behind the AC Drive Module. Do not vacuum the drive board.
3. Replace the hood.

Replacement Schedules

Replace belts if they are frayed or show excessive wear.

Electrical Testing

Electrical testing is to be done by the facility’s biomedical department as required. Check the leakage current of the treadmill periodically—at least every nine months—to be sure it does not exceed local standards. See Appendix B, Specifications, for limitations.

A

Safety Requirements

Cautions and Warnings

- Read this manual in full before operating the treadmill.
- Before each use of this equipment, check the power receptacle for signs of damage. Do not operate the equipment if the integrity of these items is in question.
- Regularly inspect cables and treadmill belts for wear or damage. Do not operate the equipment if the integrity of these items is in question.
- The treadmill must be on an appropriate, dedicated electrical circuit with a power rating that meets the electrical specification on the treadmill serial number label. Nothing else should be connected to the circuit.
- To avoid potential safety and electrical problems, use parts and accessories that meet specifications as noted in this service manual.
- Use of accessories or cables other than those specified, with the exception of accessories or cables sold by Quinton Cardiology, Inc. as replacement parts for internal components, may result in increased emissions or decreased immunity of the treadmill.
- This equipment is classified Class I, Type B, ordinary equipment, not protected against fluid ingress. It is rated for continuous operation.
- The treadmill needs special precautions regarding EMC and needs to be installed and put into service according to the guidelines of the EMC declaration tables.
- Portable and mobile RF communications equipment may affect the treadmill and the recommended separation distances in the EMC declaration tables should be observed.
- The treadmill should not be used adjacent to other equipment. If adjacent use is necessary, the treadmill should be observed to verify normal operation in the configuration in which it will be used.

- Do not operate this equipment in the presence of flammable anesthetic mixtures.
- Increased risk due to leakage current can result if this equipment is not grounded properly.
- Failure to follow these guidelines can produce a serious or possibly fatal electrical shock hazard. Consult a qualified electrician as required.
- Do not start the treadmill when someone is standing on the belt.
- Keep speed and grade at the lowest settings when getting on and off the treadmill belt.
- Never place chairs or other objects on treadmills.
- Keep the area underneath and around the treadmill clear. Make sure cables are clear of the treadmill.
- Be aware of a moving treadmill belt.
- Allow sufficient room for users to maneuver around the system and to safely mount and dismount the treadmill.
- Ensure the user understands the proper treadmill mount and dismount procedure.
- The user should straddle the treadmill belt or stand on the deck's edge at start up.
- The user should always face the front of the treadmill when stepping on or off the belt. Do not step onto the belt while facing the side of the treadmill.
- When finished, the user should hold the handrail and step off to the side of the treadmill.
- Properly train new staff.

EMC Declaration Tables

Guidance and Manufacturer's Declaration - Electromagnetic Emissions

The Medtrack Rehabilitation Treadmills are intended for use in the electromagnetic environment specified below. The customer or the user of the Medtrack Rehabilitation Treadmills should assure that they are used in such an environment.

Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The Medtrack Rehabilitation Treadmills use RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The Medtrack Rehabilitation Treadmills are suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

NOTE Tests verified with shielded input/output cables only.

Guidance and Manufacturer's Declaration - Electromagnetic Immunity

The Medtrack Rehabilitation Treadmills are intended for use in the electromagnetic environment specified below. The customer or the user of the Medtrack Rehabilitation Treadmills should assure that they are used in such an environment.

Immunity test	IEC 60601 test level	Compliance Level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	+ 6kV contact + 8 kV air	+ 6kV contact + 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	+2 kV for power supply lines +1 kV for input/ output lines	+2 kV for power supply lines +1 kV for input/ output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	+ 1 kV differential mode +2 kV common mode	+ 1 kV differential mode +2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle <40% U_T (>60% dip in U_T) for 5 cycle <70% U_T (>30% dip in U_T) for25 cycle <5% U_T (>95% dip in U_T) for 5 sec	<5% U_T (>95% dip in U_T) for 0.5 cycle <40% U_T (>60% dip in U_T) for 5 cycle <70% U_T (>30% dip in U_T) for25 cycle <5% U_T (>95% dip in U_T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the MedTrack treadmill requires continued operation during power mains interruptions, it is recommended that the MedTrack treadmill be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) Magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE 1: UT is the a.c. mains voltage prior to application of the test level.
NOTE 2: Tests verified with shielded input/output cables only.

Guidance and Manufacturer's Declaration - Electromagnetic Immunity

The Medtrack Rehabilitation Treadmills are intended for use in the electromagnetic environment specified below. The customer or the user of the Medtrack Rehabilitation Treadmills should assure that they are used in such an environment.

Immunity test	IEC 60601 test level	Compliance Level	Electromagnetic environment - guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the MedTrack treadmill, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	Recommended separation distance $d = 1.2\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = 1.2\sqrt{P}$ 80 MHz to 800 MHz $d = 2.3\sqrt{P}$ 800 MHz to 2.5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey[a], should be less than the compliance level in each frequency range[b] Interference may occur in the vicinity of equipment marked with the following symbol:

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.
NOTE 3: Tests were verified with shielded input/output cables only.

a.Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the MedTrack treadmill is used exceeds the applicable RF compliance level above, the MedTrack treadmill should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the MedTrack treadmill.

b.Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the Medtrack Rehabilitation Treadmills

The Medtrack Rehabilitation Treadmills are intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Medtrack Rehabilitation Treadmills can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Medtrack Rehabilitation Treadmills as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = 1.2\sqrt{P}$	80 MHz to 800 MHz $d = 1.2\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.
NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.
NOTE 3 Tests were verified with shielded input/output cables only.

Symbol Definitions

Quinton products display one or more of the following symbols and warning labels for your protection. No single product displays all.

Caution	Attention: Consult accompanying documents		Earth ground (protective)
	Off (power disconnected from mains)		Type B equipment - provides adequate protection against electric shock, particularly regarding allowable leakage current; reliability of the protective earth connection (when present)
	On (power connected to mains)		Type BF equipment - contains an F-type isolated patient applied part providing a high degree of protection against electric shock
	Alternating current		Type BF equipment with defibrillation protection
	High voltage		Type CF equipment - contains an F-type isolated patient applied part and provides a degree of protection against electric shock higher than that for type BF equipment regarding allowable leakage currents
	Earth ground (functional)		Type CF equipment with defibrillation protection
	Replace fuse only as marked		Fuse
	Mains power		Equipotentiality
	Down		Up
	Faster		Slower
Warning	Warning	**T**	Timed fuse (slo-blo)
Hz	Hertz	**V**	Volts
A	Amperes	**VA**	Volt Amperes

B

Specifications

MedTrack CR60 Rehabilitation Treadmill

The following specifications apply to the MedTrack CR60 Rehabilitation treadmill.

Performance	
Maximum Rated Load	400 lb (181.4 kg) (with restrictions — see Speed/Weight Graph on next page)
Belt speed range ± 0.2 mph (continuously adjustable) (acceleration in 35 seconds)	0.6 to 7.2 mph (1.0 to 11.6 km/h) or 1.0 to 12.0 mph (1.6 to 19.3 km/h)
Grade range	0 to 15% ±0.5%
Rate of grade range	0 to 15% in 60 secs max with 400 lb user
Physical	
Weight	400 lb (181.4 kg)
Nominal Walking Area	20 in. x 60 in. (51 cm x 152 cm)
Treadmill dimensions (Width x Length x Height)	31 x 87.25 x 53.5 (78.7 x 221.6 x 135.9 cm)
Walking surface height	6.5 in. (19.27 cm) from floor
Handrail height from walking surface	39 in. (99 cm)
Environmental	
Temperature	Operating: 50 to 104°F (10 to 40° C) Storage: -40 to 158°F (-40 to 70°C)
Humidity (non-condensing)	Operating: 15 to 95% relative Storage: 15 to 95% relative

Power Requirements

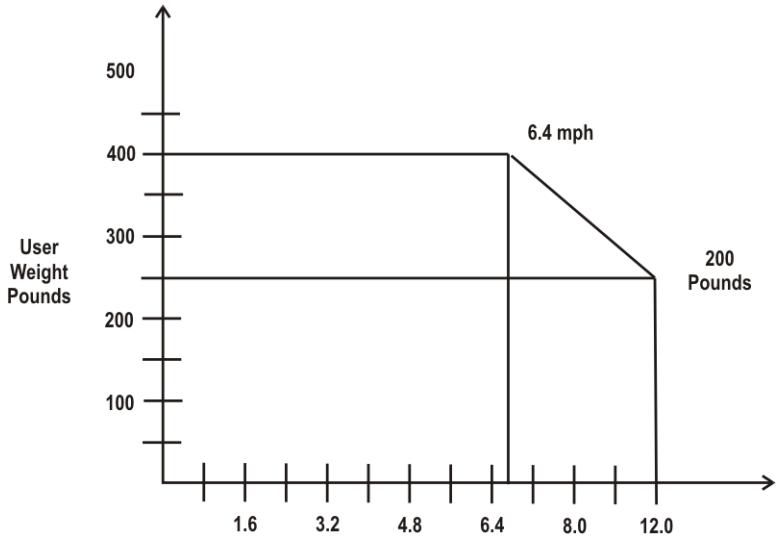
Listed below are the power requirements for your treadmill

Nominal Voltage Range (min - max) / Hertz*	Current Draw (Amps)	Min. Branch Circuit Amps
100-120 V, 50/60 Hz	20**	20
200-240 V, 50/60 Hz	10**	10

* The nominal voltage range is listed on the serial number name plate, which can be found on the hood under the circuit breaker switch.

**Full-load current is computed as described in section 430-24 of the National Electrical Code.

Speed Vs. Weight Range



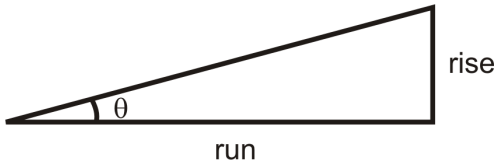
Performance Envelope 115V or 230V Operation

MedTrack Controller

SPEED	3-digit display
Units	Miles per hour (mph) or kilometers per hour (km/h)
Range	1.0 to 12 mph (1.6 to 19.3 km/h) 0.6 to 7.2 mph (1 to 11.6 km/h)
Increment	0.1 mph
Rate of change	Two increments (or decrements) per second for the first three seconds, five per second thereafter until you either release the key or reach the high/low limit.
Accuracy	Within ± 0.2 mph (0.3 km/h) of actual speed during unchanging operation, 1 mph (1.k km/h) during speed decrease. Shows target, not actual, speed during speed changes.
GRADE	3-digit display
Units	Percent
Range	0 to 15% grade
Increment	0.5% grade
Rate of change	Two increments (or decrements) per second for the first three seconds, five per second thereafter until you either release the key or reach the high/low limit.
Accuracy	Within ± 0.5% grade during unchanging operation
MULTI-FUNCTION DISPLAY	4-digit display. Displays exercise parameters, weight, and error messages
Elapsed time	Units: min:sec Range: 00:00 to 96:00 Increment: 00:01
Countdown timer	Units: min:sec Range: 00:00 to 99:59 Increment: 00:01
Elapsed distance	Units: miles or kilometers Range: 0 99.9 miles or kilometers Increment: 0.001 from 0 to 9.999 mi or km, 0.01 from 10.00 to 99.99 mi or km
Pace	Units: minutes:second per mile or minutes:second per kilometer Range: 8:20 to 99:59 min:sec/m (5:11 to 62:08 min:sec/km) Increment: 00:01 Zero speed: when walk belt speed is zero, the pace display indicates “-.-”
Calories	Total calories expended Units: calories Range: 0.001 to 999.9 Increment: 0.001 from 0 to 9.999 0.01 from 10 to 99.99 0.1 from 100 to 999.9

Caloric rate	Caloric rate expenditure Units: calories/min Range: 0.001 999.9 Increment: 0.001 from 0 to 9.999 0.01 from 10 99.99 0.1 from 100 to 999.9
METS	Units: METS Range: 1.000 to 31.62 Increment: 0.001 from 1 to 9.999 0.01 from 10.00 to 31.62
Heart rate (option)	Units: beats per minute Range: 50-225 Increment: 1
Scan	Cycles through parameters, displaying each sequentially for 3 sec
Weight	Default: 150 lb or 68 kg Minimum: 30 lb or 13 kg Maximum: 400 lb (181 kg) Increment: 1 lb or 1 kg

Percent vs Angle Relationship for Treadmill Grade



$$\text{Grade} = \frac{\text{rise}}{\text{run}} \qquad \tan\theta = \frac{\text{rise}}{\text{run}}$$

$$\text{Grade} = \tan\theta$$

$$\theta = \arctan(\text{Grade})$$

Note: 15% grade = grade = 0.15

Grade (%)	Angle (°)	Grade (%)	Angle (°)	Grade (%)	Angle (°)
0.0	0.00	5.0	2.86	10.0	5.71
0.5	0.29	5.5	3.15	10.5	5.99
1.0	0.57	6.0	3.43	11.0	6.28
1.5	0.86	6.5	3.72	11.5	6.56
2.0	1.15	7.0	4.00	12.0	6.84
2.5	1.43	7.5	4.29	12.5	7.13
3.0	1.72	8.0	4.57	13.0	7.41
3.5	2.00	8.5	4.86	13.5	7.69
4.0	2.29	9.0	5.14	14.0	7.97
4.5	2.58	9.5	5.43	14.5	8.25
5.0	2.86	10.0	5.71	15.0	8.53

C

Part Numbers

Final Assemblies

Refer to the name plate located under the power cord on the hood for the part number for your treadmill assembly.

Part Numbers by Category

The following table lists the spare part numbers by category.

Item	Part Number
ELECTRICAL	
Power Cord	
Low Voltage	030610-004
High Voltage	030736-042
Strain Relief	
Low Voltage	001227-011
High Voltage	031453-011
Configuration Plate Assembly	
Low Voltage	037083-001
High Voltage	037083-003
AC Drive Module	042153-001
DRIVE	
Drive Motor	037098-001
Flywheel Assembly	032446-001
Drive Belt	032387-001
Tensioner Assembly	032784-001
Transformer Assembly	032706-001
GRADE	
Grade Motor Assembly	033316-002

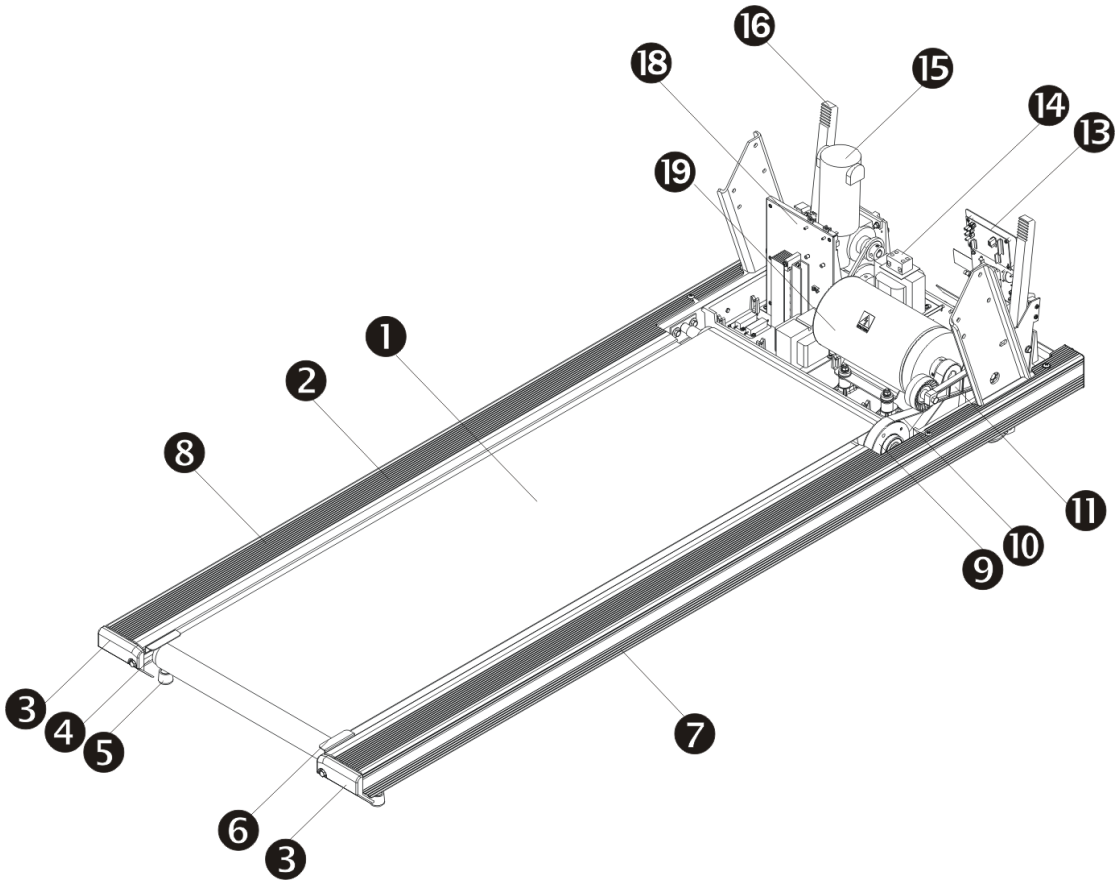
Grade POT Assembly	033171-002
Grade Wheel Kit	033502-002
Pinion Shaft	013044-001
Grade Chain Kit	030448-001
Sprocket, Chain, Grade Motor	019081-004
Deck	
Deck	030204-001
Front Roller	033507-002
Rear Roller Assembly	033508-002
Walkbelt	033509-002
Triple Flex Maintenance Kit	033511-001
End Cap, Front Left	019306-001
End Cap, Front Right	019306-002
End Cap, Rear Left	019057-002
End Cap, Rear Right	019058-002
Left Handrail Kit	030005-004
Right Handrail Kit	030005-005
Siderail Cover, right	019488-002
Siderail Cover, left	019489-002
Controller	
Treadmill Controller Panel Assembly	032360-001
Hardware	
Spare Hardware	033372-001
Magnet	019296-002

Part Numbers by location

The following table lists the spare part numbers by location. Refer to the drawings following the table.

ITEM #	Part Number	Description
1	033509-002	BELT-WALKING
2	030204-001	DECK
3	019058-002	RH END CAP CASTING
3	019057-002	LH END CAP CASTING
4	033508-002	REAR PULLEY
5	014639-001	FOOT, REAR, TREADMILL
6	030632-001	ROLLER GUARD
7	019488-002	SIDERAIL COVER, RH

ITEM #	Part Number	Description
8	019489-002	SIDERAIL COVER, LH
9	033507-002	DRIVE ROLLER ASSY
10	032387-001	POLY-V DRIVE BELT
11	032784-001	ASSY, ROTARY TENSIONER, PULLEY AND ARM
12	019306-001	END CAP, FRONT LEFT
12	019306-002	END CAP, FRONT RIGHT
13	037083-001	ASSY, CONFIG PLATE, LOW VOLTAGE
13	037083-003	ASSY, CONFIG PLATE, HIGH VOLTAGE
14	042027-001	CHOKE, PFC (for CE marked units ONLY)
15	033316-002	SPARE, MOTOR ASSEMBLY, GRADE
16	032524-002	MODIFIED RACK GEAR
17	033171-002	SPARE, ASSY, GRADE POT
18	042153-001	SPARE, AC DRIVE MODULE
19	037098-001	DRIVE MOTOR, AC VARIABLE
21	032706-001	TRANSFORMER, VARIALBLE AC
23	032446-001	FLYWHEEL ASSY
24	013044-001	PINION SHAFT
25	030448-001	#40 CHAIN & LINK KIT
26	019082-001	SWITCH, SNAP ACTION
27	033502-002	SPARE, WHEEL, 4", BALL/ROLLER BEARING
28	032748-001	HOOD COVER (No labels)
29	032744-001	HOOD ASSEMBLY
30	032774-001	LH UPRIGHT
31	032775-001	RH UPRIGHT
32	032360-001	T/M CONTROL PANEL ASSY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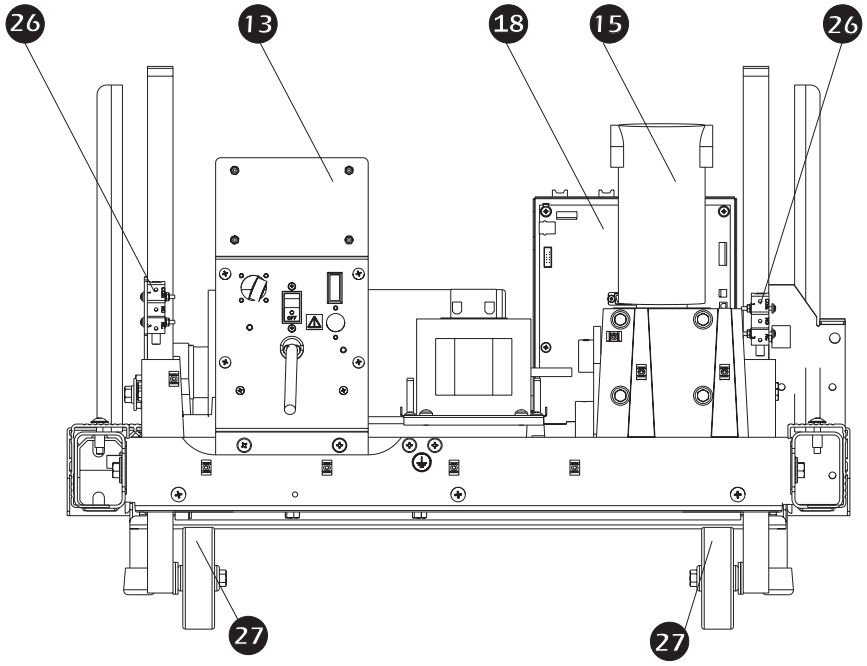
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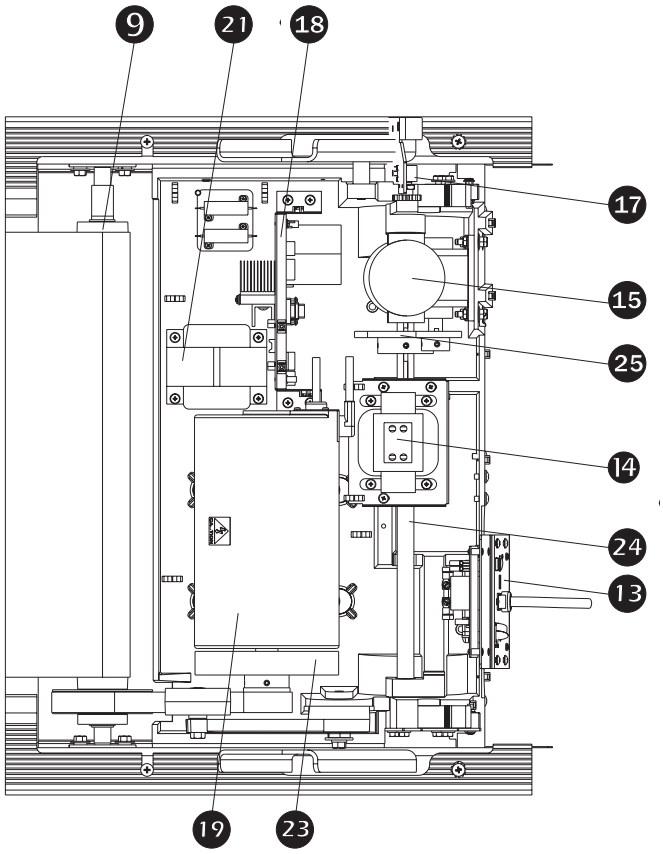
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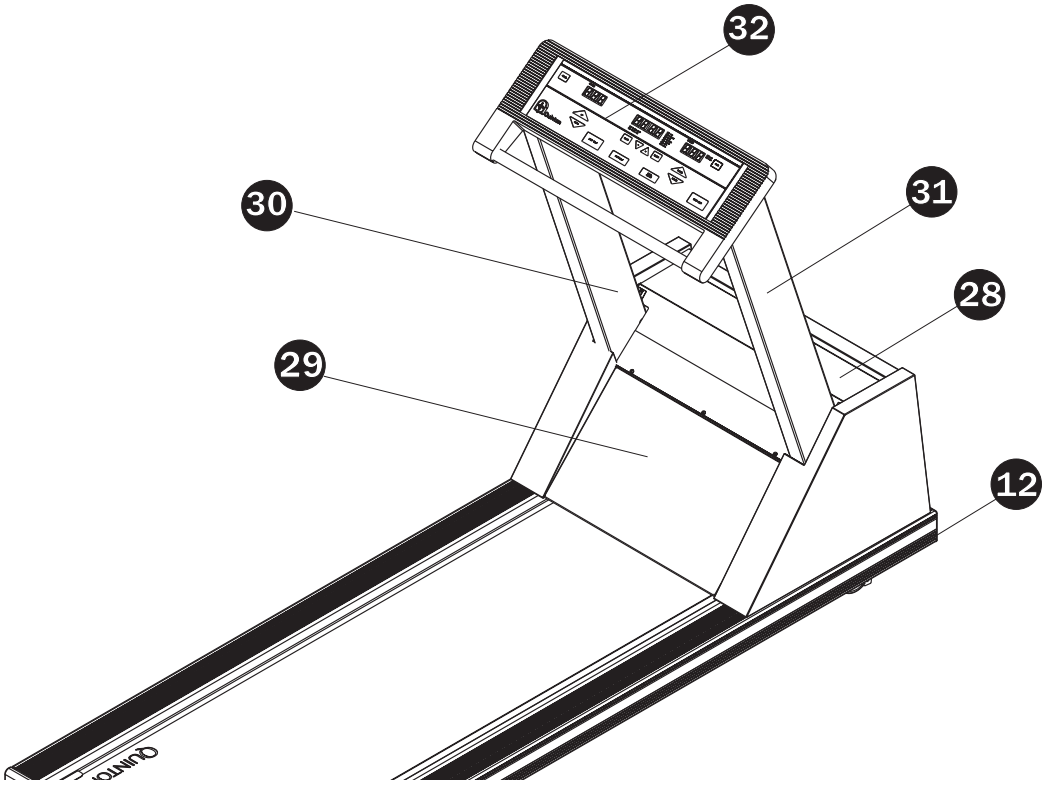
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D

Field Functional Tests

WARNING! The drive board on the AC Drive Module generates high voltage that is present whenever the red LEDs are illuminated: Never touch the drive board when the red LEDs are on. Bleeder resistors on the AC Drive Module bleed off the high voltage in approximately two minutes. Do not touch the drive board until the red LEDs have gone out.

These procedures apply to the MedTrack CR60. You can perform the complete test or only the tests required after repair or replacement of parts as specified in Chapter 4, Repair/ Replacement and Calibration. Please read the entire chapter before starting. The appropriate test must be performed as verification whenever any of the procedures in Chapter 4 are used.

Complete Field Functional Test

The following steps must be performed with the treadmill completely assembled, except as noted.

With the power cord connected to the correct outlet, turn on the circuit breaker.

Test A: Test the Controller Displays

Observe the controller displays during initialization. For the MedTrack CR60, the normal sequence is:

- Seven segment displays show all 8s (888 8888 888).
- After 3 seconds, all displays go blank.
- Multi display briefly shows configuration code (0.0 CP.-x 0.0).
- Normal display is shown (00 150 00).

If the normal sequence does not occur, refer to the following table for possible causes.

Test A Error Solutions: MedTrack CR60		
Problem	**Possible Cause**	**Solution**
Seven segment displays lock up with all 8s and do not go blank.	ESD (static).	Make sure control panel is properly grounded. Check the following: • All star washers are installed. • Green wire goes to drive board on AC Drive Module. • Continuity to ground on power cord plug. • Less than two ohms neutral to ground at the power outlet.
	Hall Effect Sensor (SW 1) and screw on key panel may have excessive clearance.	
	Hall Effect Sensor (SW 1) and screw on key panel may be misaligned.	
	Microprocessor socket may be damaged.	Replace controller PCBA.
	Microprocessor socket may be from non-approved vendor (McKenzie).	
Seven segment displays flash all 8s and then go blank and stay blank.	Limited-access switch is activated.	Deactivate limited-access switch (see “Disabling the Limited Access Switch” on page 4-28).

Test B: Test the Multi Display

Observe the center Multi display on the controller. If an error code is displayed, refer to Error Codes in Chapter 3, Troubleshooting.

Test C: Test the Controller Operation

Test the Controller Keys

1. To enter Service mode, press **Stop Belt + Faster + Slower**. **P000** appears in the Select display, indicating that no key is pressed.

2. Press and hold each key in succession to display the appropriate code in the Select display. **P000** should appear when you release each key.

Key	Code
No key pressed	P000
Shorted key(s)	P555
Clear	P001
Up	P002
Down	P003
Stop Belt	P004
Input+	P005
Input-	P006
Select	P007
Start Belt	P009
Units	P010

Key	Code
Cool Down	P013
Faster	P014
Slower	P015

Test the Key Panel Displays

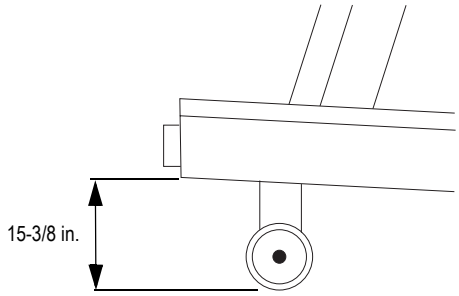
Press **Stop Belt + Up + Down**. The display cycles though one digit at a time in each display, starting from left to right across the panel. Each digit displays the number 8 and the associated decimal point for one second, then turns off as the next one lights up.

When this is completed, the LEDs light up individually, starting from the top. The Select LEDs light up first, followed by the Units LEDs.

After the LEDs are tested, all digits in all three displays simultaneously count up from 0 to 9 (no decimal points are illuminated during this count).

Test D: Test the Grade Operation

1. Remove the power cords and treadmill hood as described in “Removing the Treadmill Hood” on page 4-3.
2. Ensure the controller displays 0.0% grade.
3. Measure the distance from the floor to the lower edge of the siderail cover at the rear support and at the front grade wheel. Both measurements should be the same ±3/8 in. If they are not, refer to “Calibration Procedures” on page 4-28.
4. Increase the grade to 15.0%
5. Measure the distance from the floor to the bottom front edge of the head. It should be 15-3/8 in. ±3/8 in.:



6. Ensure that the grade will traverse from minimum to maximum and back.
7. Replace the hood (refer to “Removing the Treadmill Hood” on page 4-3).

Test E. Test Speed Operation

1. Place a chalk mark or piece of tape on the walk belt across the direction of travel.

2. Place another mark or piece of tape on the top of the siderail cover.
3. Start the walk belt and increase its speed to 4.0 mph.
4. Count how many times the belt rotates in two minutes. This should be 62 ± 3 revolutions for all treadmill models.
5. Increase the walk belt speed to 7.2 mph and count the number of belt revolutions in two minutes. This should be 112 ± 3 revolutions.

    - If any of the measurements are not accurate, refer to "Belt Tension" on page 4-23 and/or Adjusting the Walk Belt in Chapter 4, Repair/ Replacement and Calibration.

6. Ensure that the speed will traverse from minimum to maximum and back.

Test F: Test the Deck Friction

1. Increase the treadmill grade to 15% (maximum).
2. Do not start the belt. Stand on the treadmill walk belt and push away from the handrail. The belt should begin rotating with little forward pressure and continue to rotate for several steps. If additional pressure is required to keep the belt moving, replace the belt and deck.

Test G: Test the Walk Belt Operation

1. With the walk belt speed at maximum, observe the tracking. If it needs adjustment, refer to Walk Belt Tracking in Chapter 4, Repair/ Replacement and Calibration.
2. With the walk belt speed at 3.0 mph, walk on the treadmill.
3. Grasp the handrail and resist the motion of the walk belt. If any slippage is detected, refer to Replacing the Tensioner and/or Adjusting the Walk Belt in Chapter 4. Repair/Replacement and Calibration.
4. Stop the walk belt.

Test H: Shut Down the Treadmill

Turn the circuit breaker off, disconnect the power cord from the outlet, and place the treadmill back in service.

Field Test No. 1

- The following steps must be performed with the treadmill completely assembled, except as noted.

With the power cord connected to the correct outlet, turn on the circuit breaker.

Perform the following tests:

“Test A: Test the Controller Displays” on page D-1.

“Test B: Test the Multi Display” on page D-2.

“Test H: Shut Down the Treadmill” on page D-4.

Field Test No. 2

- The following steps must be performed with the treadmill completely assembled, except as noted.

With the power cord connected to the correct outlet, turn on the circuit breaker.

Perform the following tests:

“Test A: Test the Controller Displays” on page D-1.

“Test D: Test the Grade Operation” on page D-3.

“Test E. Test Speed Operation” on page D-3.

“Test H: Shut Down the Treadmill” on page D-4.

Field Test No. 3

- The following steps must be performed with the treadmill completely assembled, except as noted.

With the power cord connected to the correct outlet, turn on the circuit breaker.

Perform the following tests:

“Test E. Test Speed Operation” on page D-3.

“Test F: Test the Deck Friction” on page D-4.

“Test G: Test the Walk Belt Operation” on page D-4.

“Test H: Shut Down the Treadmill” on page D-4.

Field Test No. 4

- The following steps must be performed with the treadmill completely assembled, except as noted.

With the power cord connected to the correct outlet, turn on the circuit breaker.

Perform the following tests:

“Test D: Test the Grade Operation” on page D-3.

“Test H: Shut Down the Treadmill” on page D-4.

Field Test No. 5

- The following steps must be performed with the treadmill completely assembled, except as noted.

With the power cord connected to the correct outlet, turn on the circuit breaker.

Perform the following tests:

“Test A: Test the Controller Displays” on page D-1.

“Test B: Test the Multi Display” on page D-2.

“Test C: Test the Controller Operation” on page D-2.

“Test H: Shut Down the Treadmill” on page D-4.

Drawings

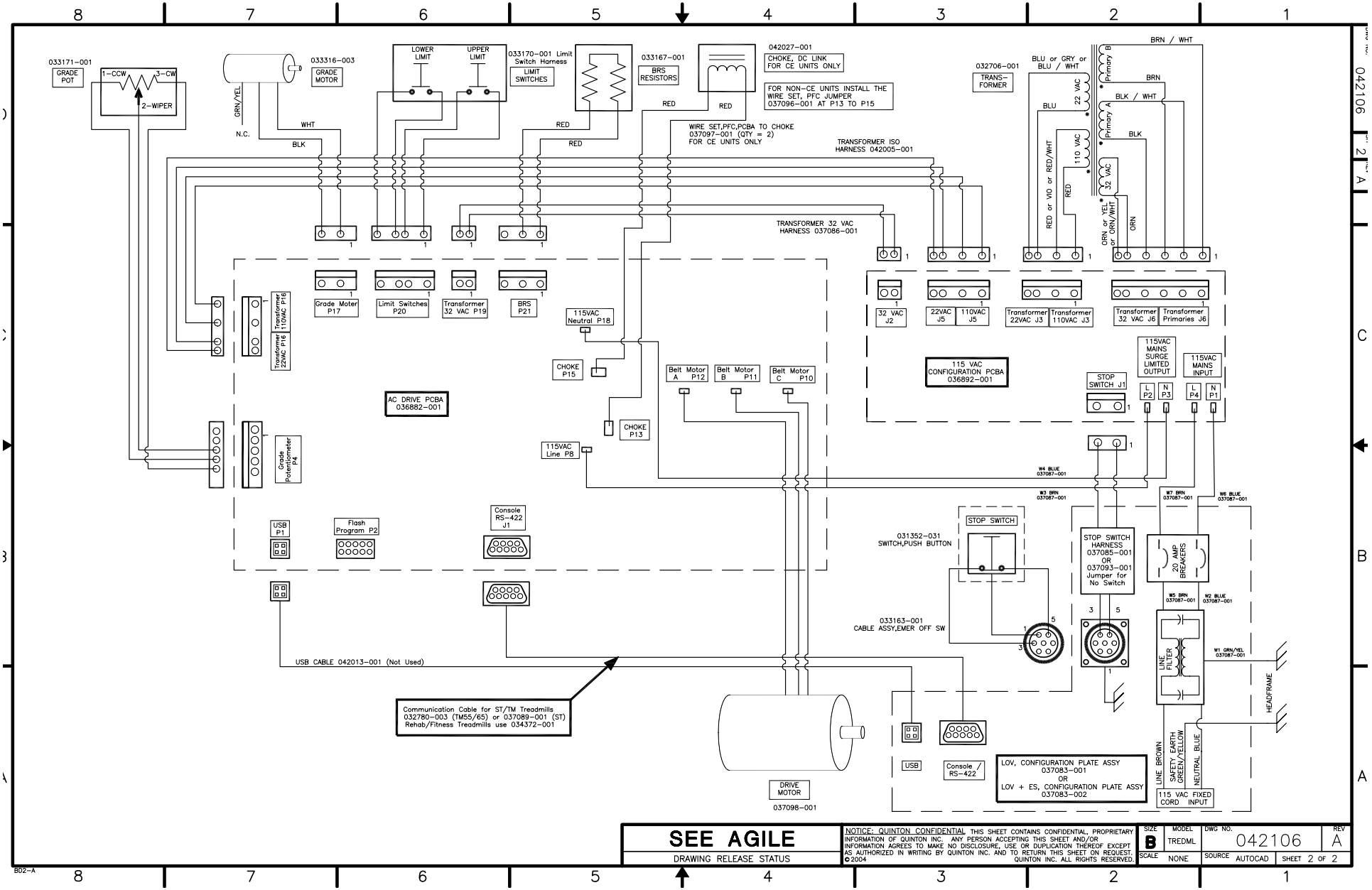
Wiring Diagrams

These wiring diagrams for both the low voltage and high voltage treadmill models are shown as follows:

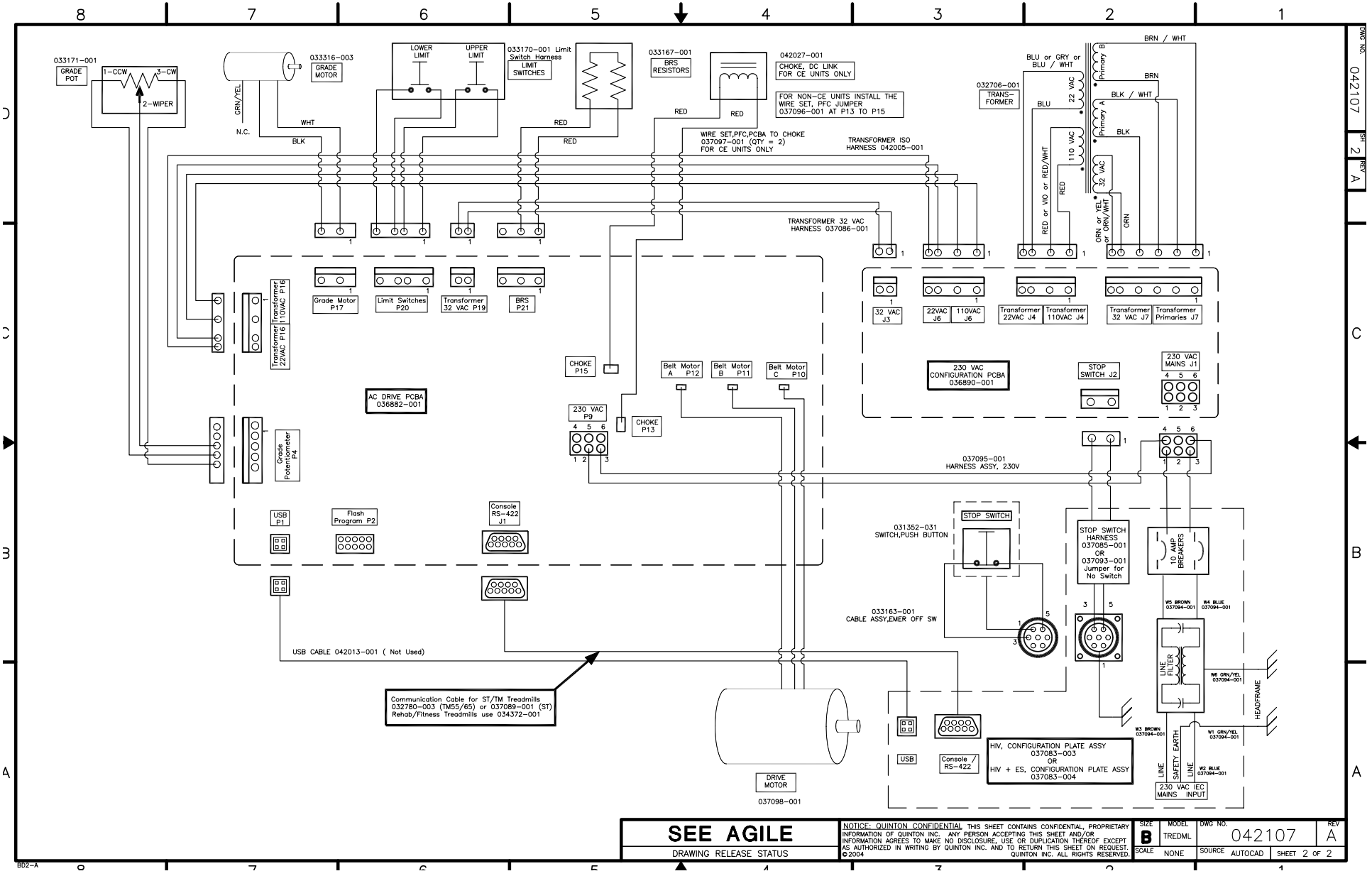
“Wiring Diagram, Low Voltage Treadmill” on page E-3

“Wiring Diagram, High Voltage Treadmill” on page E-4.

Wiring Diagram, Low Voltage Treadmill



Wiring Diagram, High Voltage Treadmill



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